SAMPO

CONFIDENTIAL

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Version: 1.0

42“ PDP
SERVICE MANUAL
MODEL：BDH4222V/00,BDH4222V/22
BDH4223V/27
PANEL：VVFPF42C128UC51

Collation: Andy Lai

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If having any changes, do not do advanced advice.

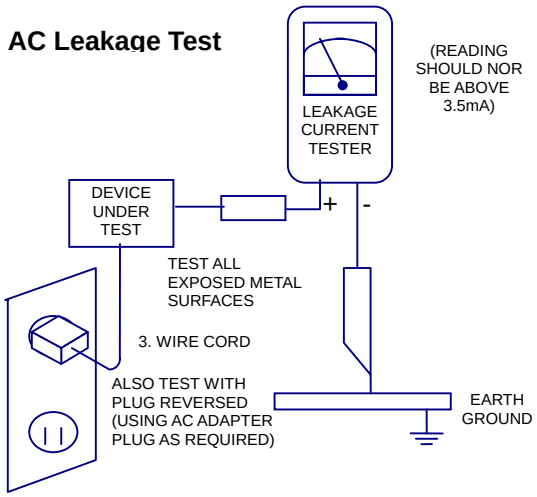
1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items.

a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage, Such opening include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. Leakage Current Hot Check—With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institutes (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 478. With the instrument AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 3.5 milliamp. Reverse the instrument power cord plug in the outlet and repeat test. **ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER.**

AC Leakage Test



2. Read and comply with all caution and safety-related notes on or inside the Monitor cabinet, on the Projection Monitor chassis, or on the picture tube.

3. Design Alteration Warning—Do not alter or add to the mechanical or electrical design of this unit. Design alterations and additions, including, but not limited to, circuit modifications and the addition of the items such as auxiliary audio and/or video output connections might alter the safety characteristics of this Projection Monitor and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and will make you, the service, responsible for personal injury or property damage resulting therefrom.

4. **Hot Chassis Warning**—**a.** Some Monitor chassis are electrically connected directly to one conductor of the AC power cord and may be safely serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in opposite polarity and again measure the voltage potential between the chassis and a known earth ground. **b.** Some Monitor chassis normally have 85V AC (RMS.), between chassis and earth ground regardless of the AC plug polarity. These chassis can be safely serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection. **c.** Some Projection Monitor chassis have a secondary ground systems in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground system are electrically separated by insulating material that must not be defeated or altered.

5. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: **a.** near sharp edges, **b.** near thermally hot parts—be sure that leads and components do not touch thermally hot parts, **c.** the AC supply, **d.** high voltage, **e.** antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between components, and between components and the printed-circuit board. Check AC power cord for damage.

6. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wireing that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

7. **PRODUCT SAFETY NOTICE**—Many Monitor electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in this service data by shading with a ⚠ mark on schematics and by shading or a ∗ mark in the parts list. Use of a substitute replacement part that does not have the same safety characteristics as the recommended replacement part in this service data parts list might create shock, fire, and/or other hazards.

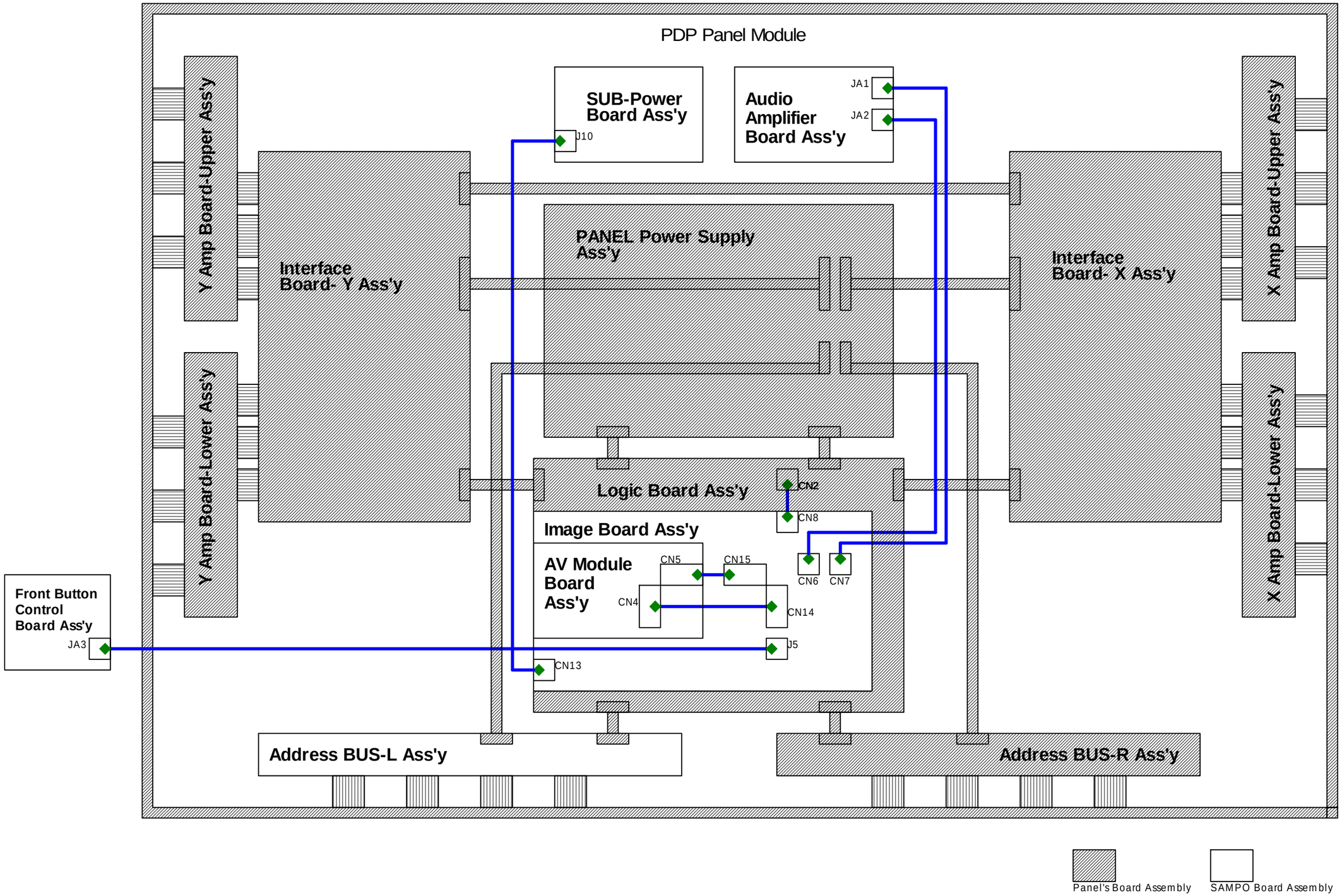

PDP Panel Module
SUB-Power Board Ass'y
J10
Audio Amplifier Board Ass'y
JA1
JA2
Y Amp Board-Upper Ass'y
Interface Board- Y Ass'y
PANEL Power Supply Ass'y
Interface Board- X Ass'y
X Amp Board-Upper Ass'y
Y Amp Board-Lower Ass'y
Logic Board Ass'y
CN2
CN8
Image Board Ass'y
AV Module Board Ass'y
CN5
CN15
CN4
CN14
CN6
CN7
Front Button Control Board Ass'y
JA3
J5
CN13
X Amp Board-Lower Ass'y
Address BUS-L Ass'y
Address BUS-R Ass'y
Panel's Board Assembly
SAMPO Board Assembly

Image Board Socket Data

Image Board ¡öj÷ Panel		
Image Board Ass'y		
	CN8 (20 Pin)	CN2 (5 Pin)
Pin 1	RXIN3+	+5VSB
Pin 2	GND	NC
Pin 3	RXIN3-	V33SB
Pin 4	SCL0_33	NC
Pin 5	RXCLKIN+	GND
Pin 6	GND	
Pin 7	RXCLKIN-	
Pin 8	SDA0_33	
Pin 9	RXIN2+	
Pin 10	GND	
Pin 11	RXIN2-	
Pin 12	ALISCPUGO	
Pin 13	RXIN1+	
Pin 14	ALISPDPGO	
Pin 15	RXIN1-	
Pin 16	ALIS_IRQ	
Pin 17	RXIN0+	
Pin 18	ALISPDWN	
Pin 19	RXIN0-	
Pin 20	GND	

Image Board ¡öj÷ Front Button Control Board		
Image Board	Front Button Control Board	Content
J5 (6 Pin)	JA3 (6 Pin)	
Pin 1	Pin 1	RC_OUT
Pin 2	Pin 2	SW_OUT
Pin 3	Pin 3	ON_LED
Pin 4	Pin 4	SB_LED
Pin 5	Pin 5	DGND
Pin 6	Pin 6	SB5V

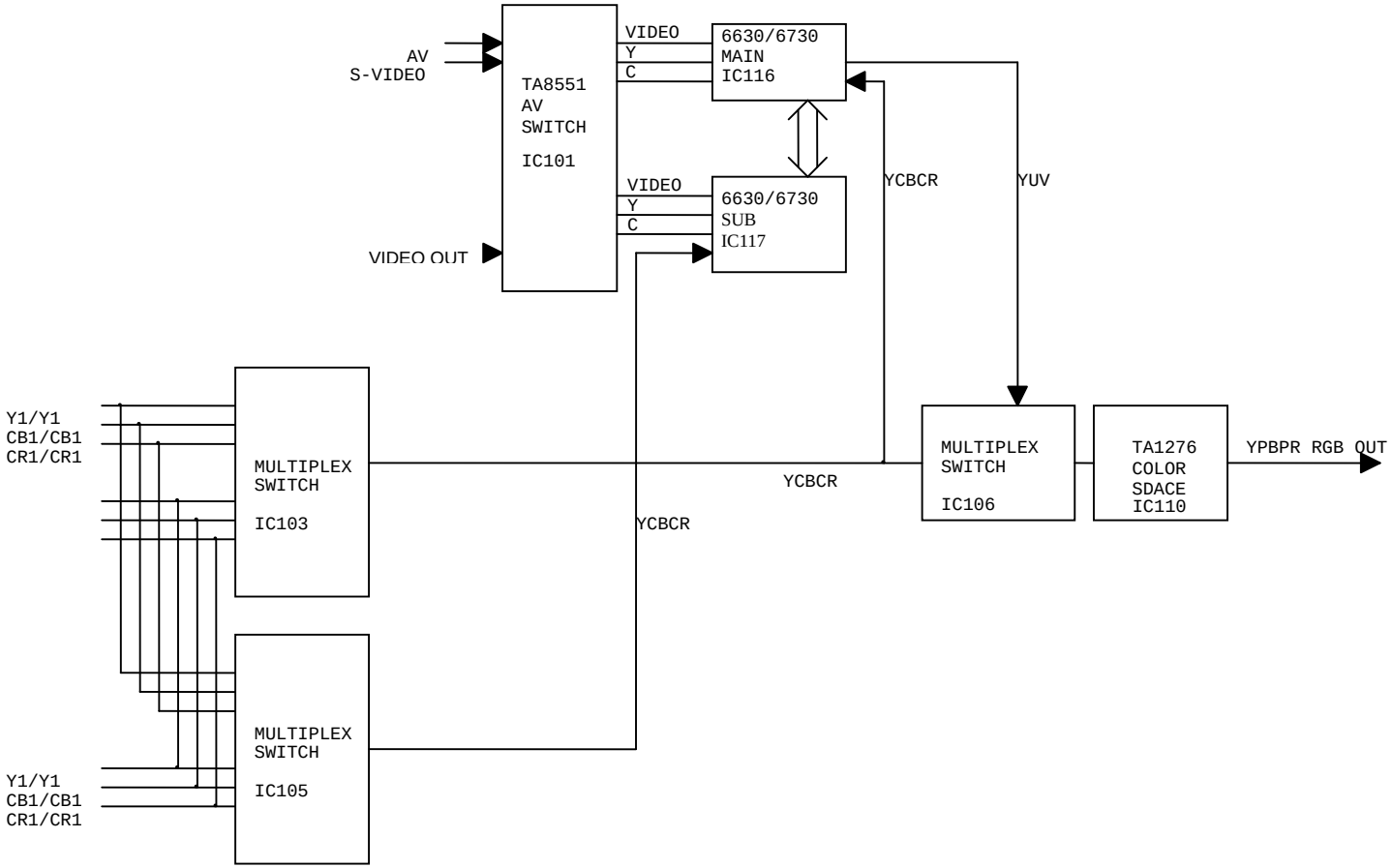
Image Board ¡öj÷ Audio Amplifier Board		
Image Board	Audio Amplifier Board	Content
J11 (12 Pin)	JA1 (12 Pin)	
Pin 1	Pin 1	P18V
Pin 2	Pin 2	P18V
Pin 3	Pin 3	DGND
Pin 4	Pin 4	SB5V
Pin 5	Pin 5	DGND
Pin 6	Pin 6	AO_SEL
Pin 7	Pin 7	SDA2
Pin 8	Pin 8	SCL2
Pin 9	Pin 9	A_MUTEn
Pin 10	Pin 10	SURR1
Pin 11	Pin 11	SURR2
Pin 12	Pin 12	NC

Image Board ¡öj÷ Audio Amplifier Board		
Image Board	Audio Amplifier Board	Content
J12 (10 Pin)	JA2 (10 Pin)	
Pin 1	Pin 1	L_IN
Pin 2	Pin 2	R_IN
Pin 3	Pin 3	AGND
Pin 4	Pin 4	L_OUT
Pin 5	Pin 5	R_OUT
Pin 6	Pin 6	AGND
Pin 7	Pin 7	SUB_WFR
Pin 8	Pin 8	SPK_CTL
Pin 9	Pin 9	PWR_CTL
Pin 10	Pin 10	NC

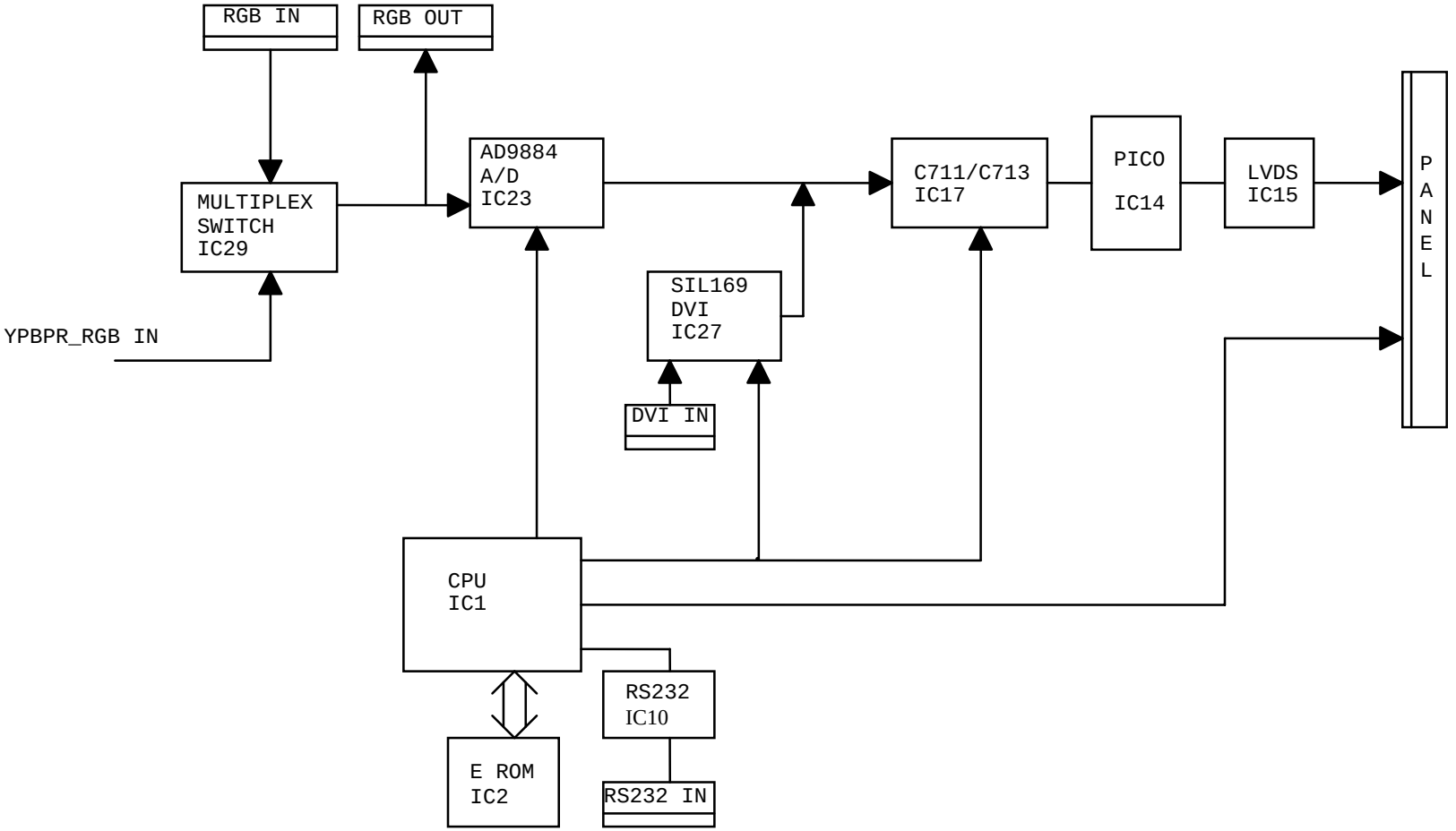
Image Board ¡öj÷ AV Module Board		
Image Board	AV Module Board	Content
CN4 (48 Pin)	CN14 (48 Pin)	
A1	A1	YPBPR_R
A2	A2	YPBPR_G
A3	A3	YPBPR_B
A4	A4	YPBPR_HS
A5	A5	YPBPR_VS
A6	A6	P7
A7	A7	P5
A8	A8	GND
A9	A9	P3
A10	A10	P1
A11	A11	ALE_DPTV
A12	A12	RDn_DPTV
A13	A13	INT_DPTV_S
A14	A14	RST_DPTV
A15	A15	12VT
A16	A16	5V1
B1	B1	GND
B2	B2	GND
B3	B3	GND
B4	B4	SB5V
B5	B5	GND
B6	B6	P6
B7	B7	P4
B8	B8	GND
B9	B9	P2
B10	B10	P0
B11	B11	WRn_DPTV
B12	B12	INT_DPTV
B13	B13	GND
B14	B14	PS_DPTV
B15	B15	GND
B16	B16	P12V
C1	C1	SB5V
C2	C2	TDO
C3	C3	TDI
C4	C4	GND
C5	C5	GND
C6	C6	TMS
C7	C7	GND
C8	C8	TCK
C9	C9	GND
C10	C10	GND
C11	C11	GND
C12	C12	GND
C13	C13	GND
C14	C14	NC
C15	C15	GND
C16	C16	NC

Image Board ¡öj÷ AV Module Board		
Image Board	AV Module Board	Content
CN5 (48 Pin)	CN15 (48 Pin)	
A1	A1	L_OUT
A2	A2	L_IN
A3	A3	GND
A4	A4	YUV_SPSW
A5	A5	HSYNC_SP
A6	A6	15Kn_SP
A7	A7	GND
A8	A8	AVB_DETn
A9	A9	TUN_DETn
A10	A10	GND
A11	A11	GND
A12	A12	GND
A13	A13	GND
A14	A14	GND
A15	A15	GND
A16	A16	GND
B1	B1	R_OUT
B2	B2	R_IN
B3	B3	GND
B4	B4	YUV_SW
B5	B5	HSYNC_MP
B6	B6	15Kn_MP
B7	B7	GND
B8	B8	SDA2
B9	B9	SCL2
B10	B10	5V1
B11	B11	GND
B12	B12	GND
B13	B13	GND
B14	B14	GND
B15	B15	GND
B16	B16	GND
C1	C1	SUB_WFR
C2	C2	PWR_CTL
C3	C3	AFT_TUN
C4	C4	NC
C5	C5	NC
C6	C6	GND
C7	C7	GND
C8	C8	SDA2
C9	C9	SCL2
C10	C10	5V1
C11	C11	GND
C12	C12	SSO
C13	C13	PCS_CLK
C14	C14	PCSI
C15	C15	PCS_CS
C16	C16	PCn_MPU

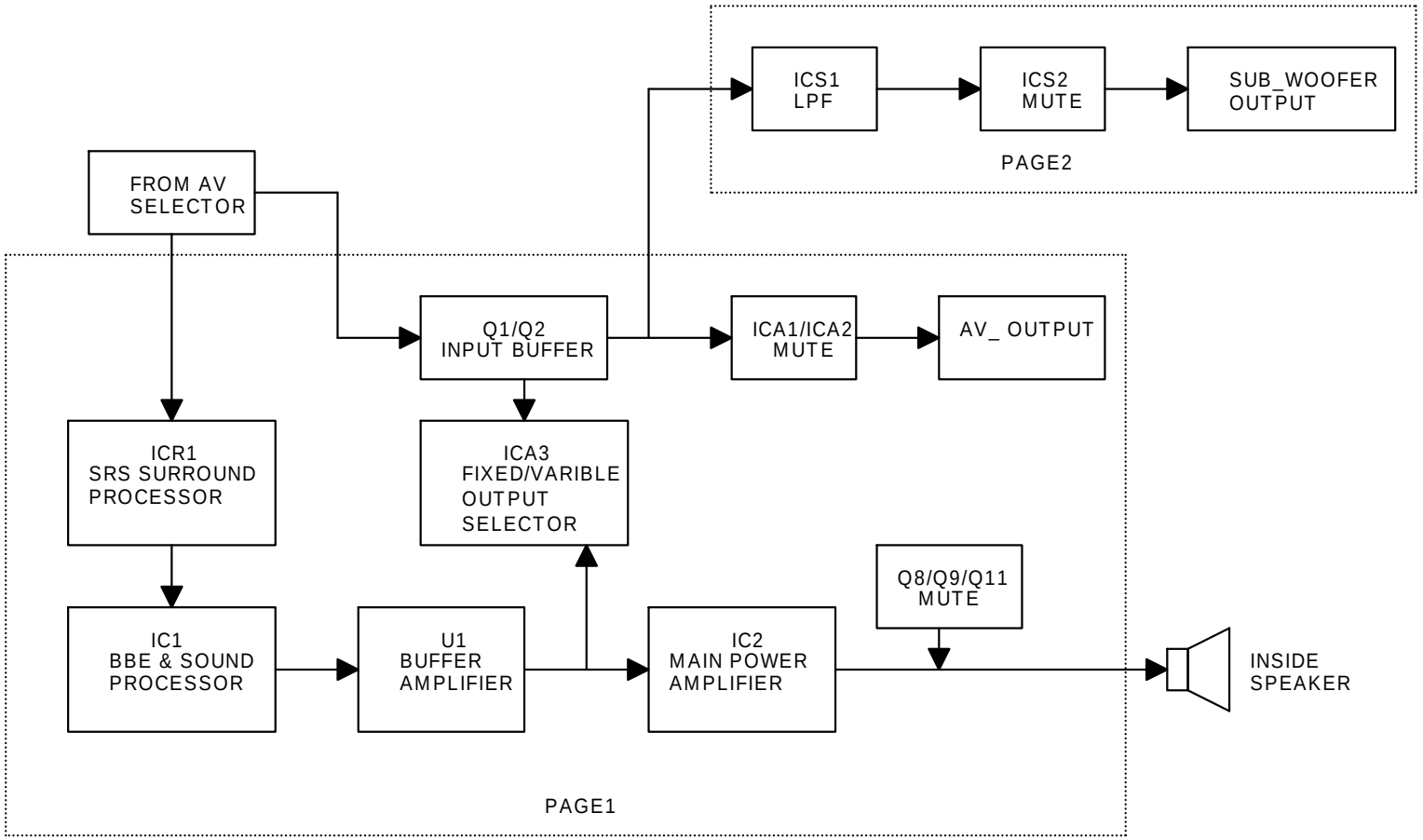
AV Signal Block Diagram



Digital Signal Block Diagram



PDP Sound Block Diagram



DPWB11372-1G-SX

FACTORY ADJUSTED METHOD VER1.0

1. Color temperature adjustment
   Push the factory service key to into the adjustment mode. The picture will appear as follow

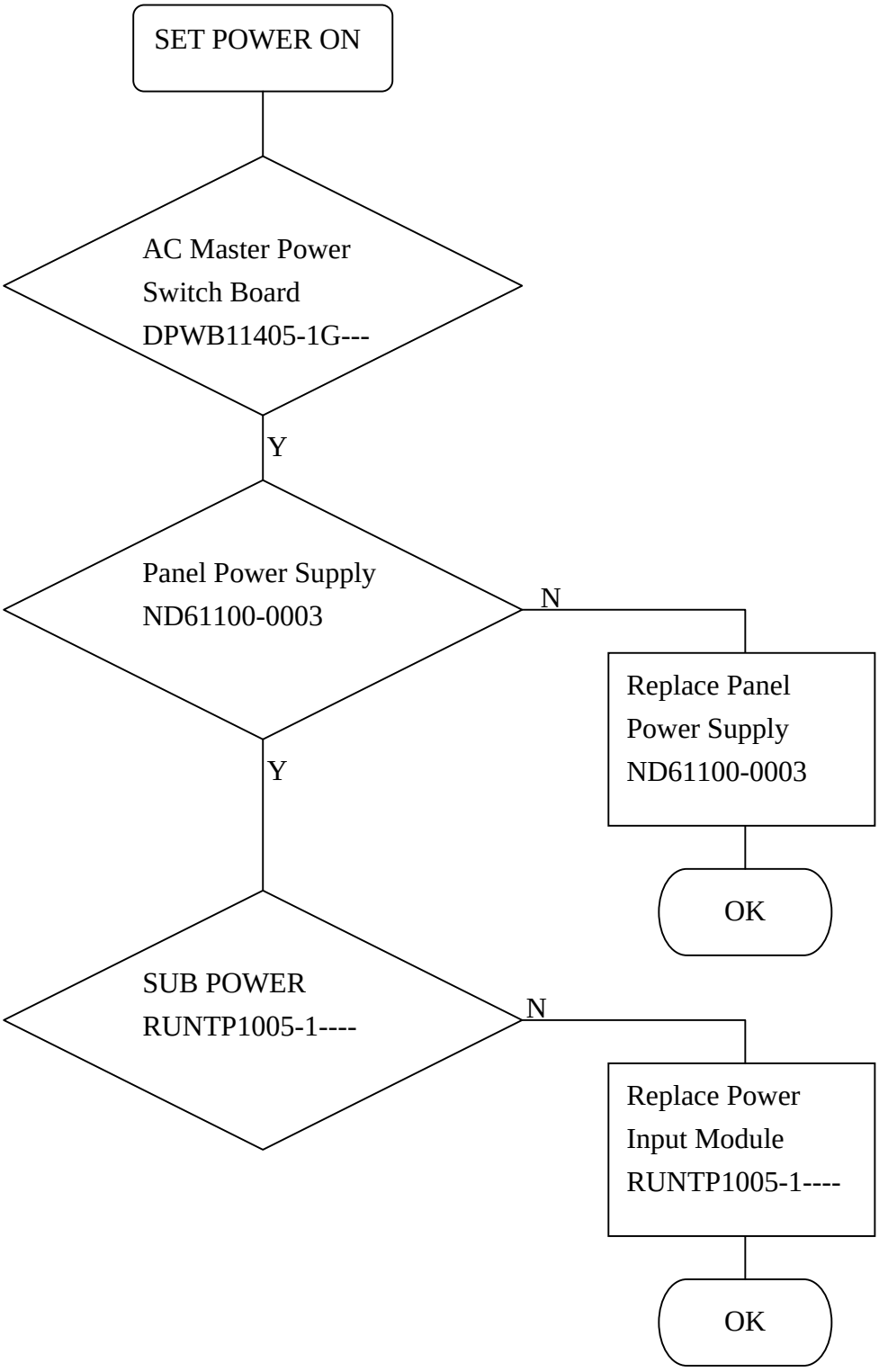
DVI	7180°k
X=308	Y=298
GAIN	Bias
RGB	RGB
XXX	XXX

Use the AV key to select the color to adjust and ◂ or ▸ key to adjust the level.
The required equipments are CA-100,Vp300.

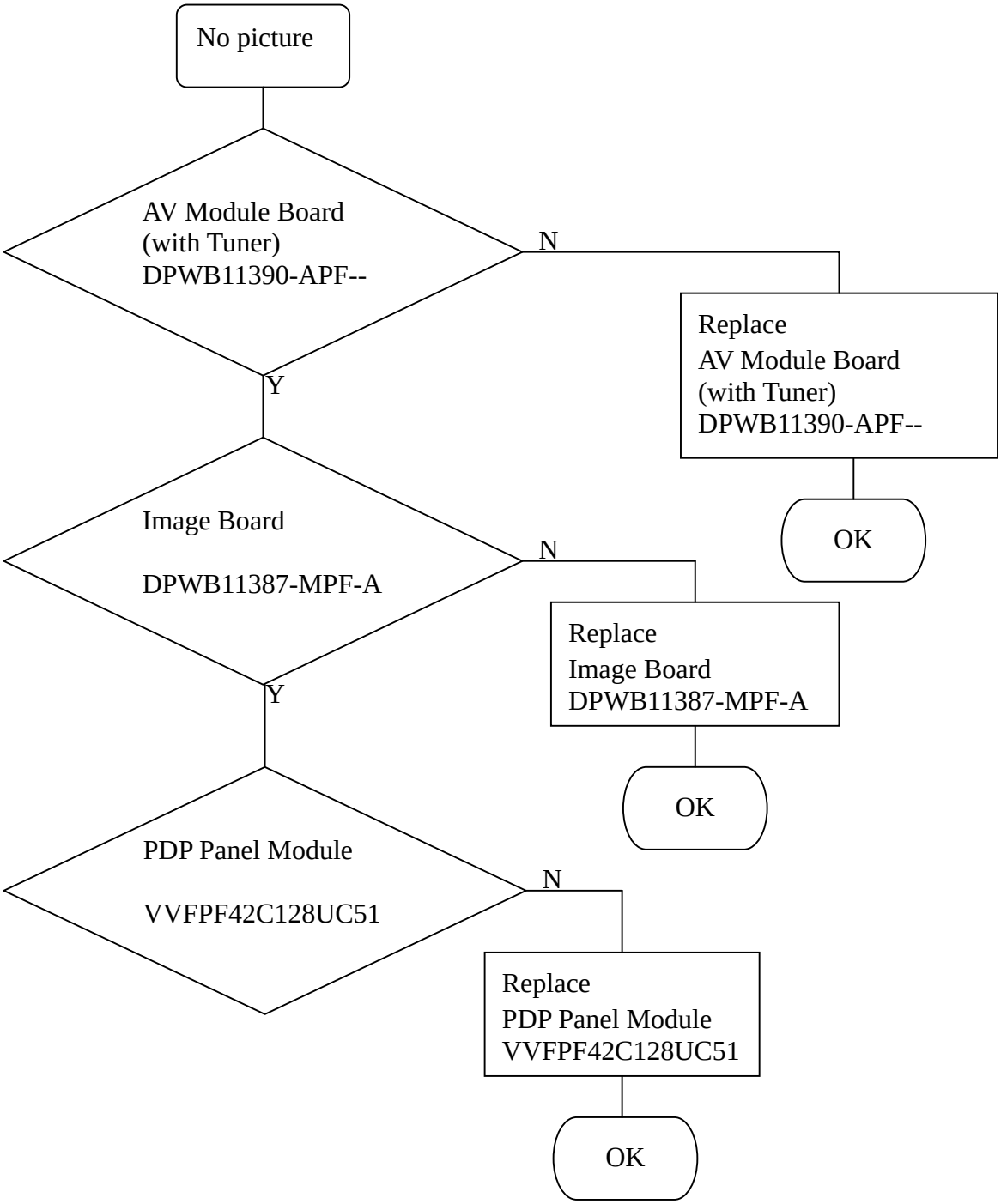
a. Adjust Bias first to let the Y be 0.4 on CA-100. Adjust R or B to let the value of X,Y on CA-100 be the same as the value showing screen, The value of Y should be Maintained 0.55 during the adjusting.
b. Move the cursor to adjust Gain. The value of Y should be adjusted to 35. Then adjust R or B to let the value of X,Y on CA-100 be the same as the value showing on screen. The value of Y should be maintain 20 during the adjustment.
c. Repeat to check the Bias and Gain. The value of Y,X and Y should be the same as the previous adjusted value. Then the DVI 7180°k mode is adjusted completely.
d. Push the factory service key again to next picture. Then repeat the steps a. b. c. to adjust.
e. If the adjustment is completed, repeat d. a. b. and c steps to adjust again.
f. When the last mode AV 10180°k is adjusted completely, push the factory service key again to leave the adjustment mode,

Note: 1. There are 9 adjusted modes(DVIx3.RGBx3 Avx3)
2. The adjusted sequence is DVI→RGB→AV.
3. DVI: Bias Y=0.55
Gain Y=36
RGB: Bias Y=0.70
Gain Y=36
YPbPr : Bias Y=1.2
Gain Y=41

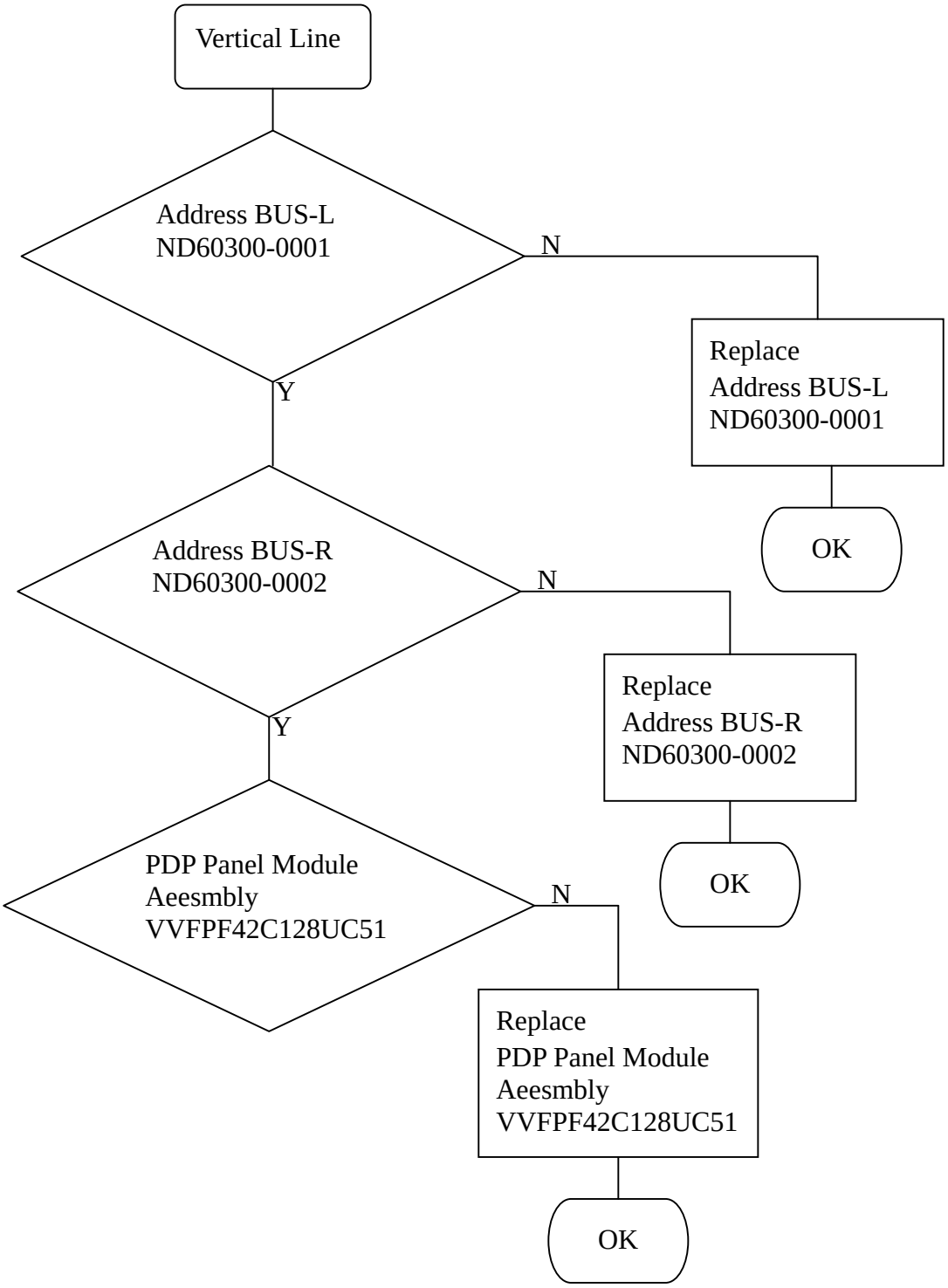
NO POWER


SET POWER ON
AC Master Power
Switch Board
DPWB11405-1G---
Y
Panel Power Supply
ND61100-0003
N
Replace Panel
Power Supply
ND61100-0003
OK
Y
SUB POWER
RUNTP1005-1----
N
Replace Power
Input Module
RUNTP1005-1----
OK

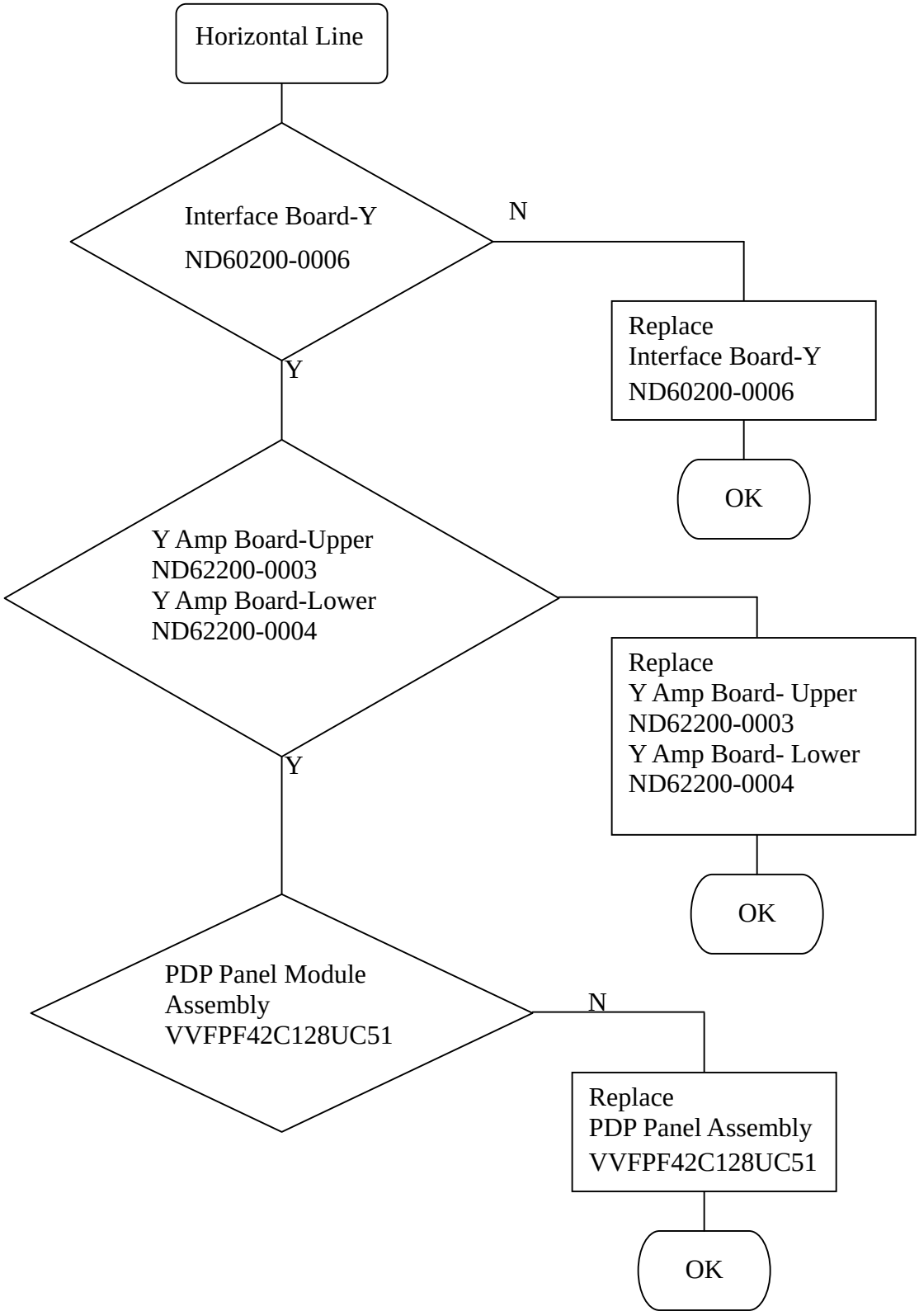
No picture


No picture
AV Module Board
(with Tuner)
DPWB11390-APF--
N
Y
Replace
AV Module Board
(with Tuner)
DPWB11390-APF--
OK
Image Board
DPWB11387-MPF-A
N
Y
Replace
Image Board
DPWB11387-MPF-A
OK
PDP Panel Module
VVFPF42C128UC51
N
Replace
PDP Panel Module
VVFPF42C128UC51
OK

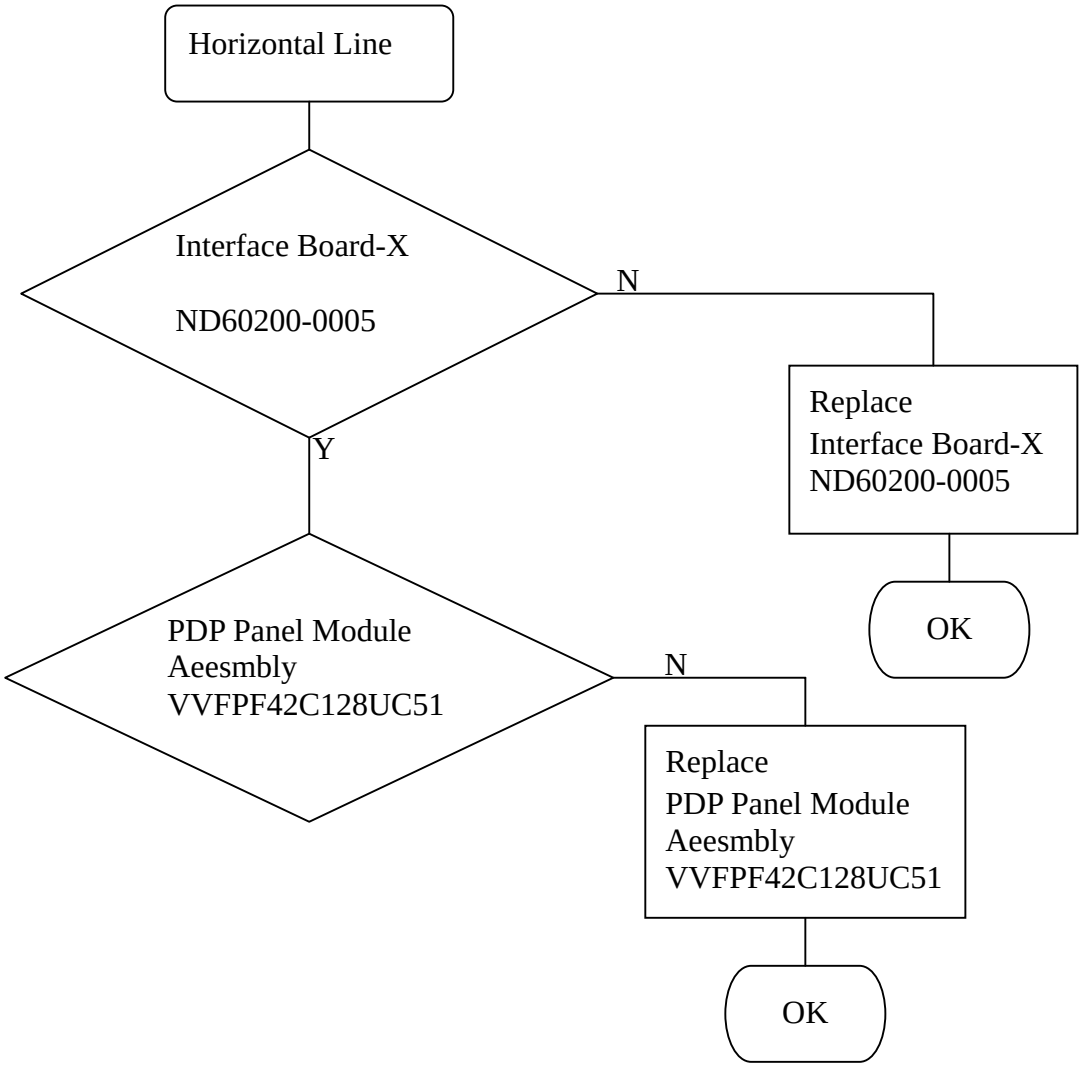
Vertical Line fail



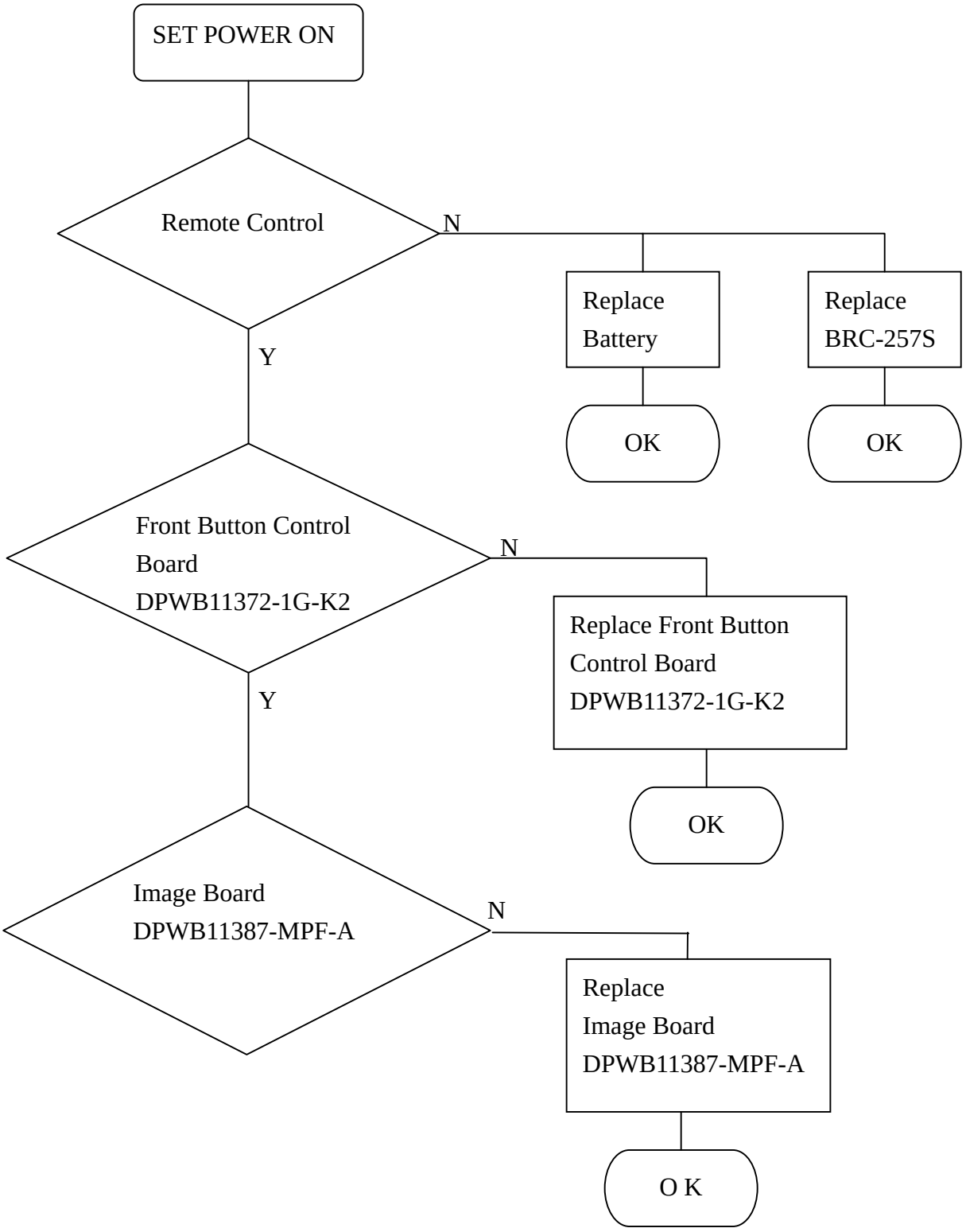
Horizontal Line fail



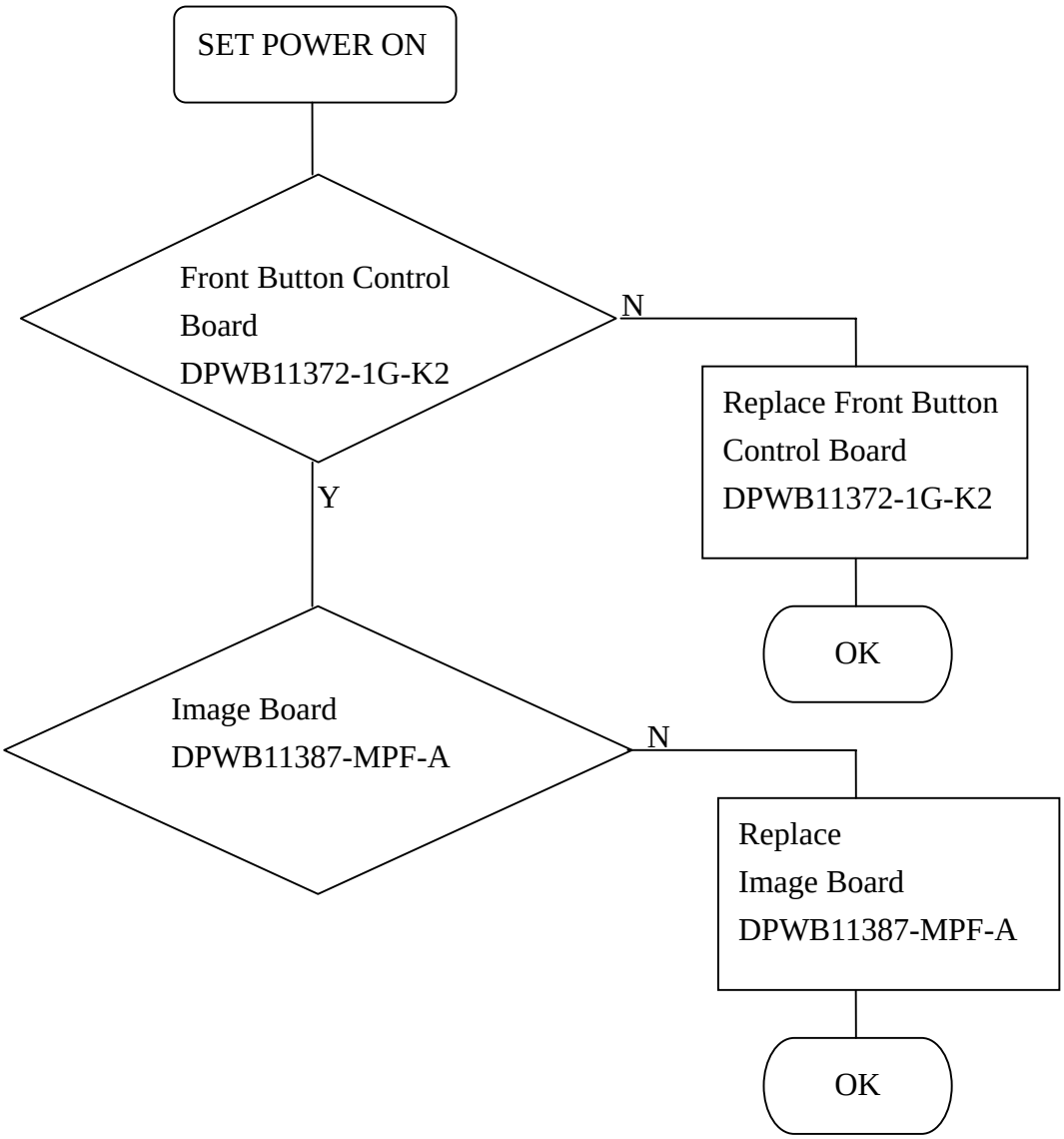
Horizontal Line fail



NO Remote Control



Front Button Fail



SPECIFICATION FOR BDH4222V PLASMA DISPLAY VER1.0

1. SCOPE:

These specifications describe all the characteristics of the 42 inch color monitor.

2. ELECTRICAL REQUIREMENTS:

2.1. Display panel: **Specification**

a. Screen size	**Diagonal 42 inch**
b. Aspect ratio	**16:9 wide**
c. Number of pixels	**1024(Horizontal, RGB Trio) × 1024(Vertical)pixels**
d. Pixel Pitch	**0.9mm × 0.51mm**
e. Luminance	**1100cd/m^2, (at 1% white window pattern)**
f. Contrast	**1000:1 (at 1% white window pattern)**
g. Chromatically	**Warm:x=0.312±0.015, y=0.326±0.015** **Normal: x=0.299±0.015,y=0.310±0.015** **Cool:x=0.283±0.015,y=0.290±0.015** **at center block white pattern 60% ＆10% (mosaic)for PC** **at center block white pattern 60% ＆14% (mosaic)for Video.**

2.2. Power Source:

a. Input voltage	**100 ~ 240 Vac , 50 / 60 Hz**
b. Input current	**4A**
c. Inrush current	**60 A p-p/20ms Max.**
d. Power consumption	**390±10% Watts**
e. Stand-by & Power save	**6 Watts Max.**

2.3. Input Signal:

2.3.1 Connector Type: **RCA Jack for audio, video Y/C_B/C_R and Y/P_B/P_R**
4 pin Din S-terminal
9 pin D-SUB
15 pin D-SUB
24 pin DVI

2.3.2 Video/S-Video Signal:

a. Type	**Analog**
b. Polarity	**Positive**
c. Amplitude	**Video 1Vp-p(with sync) ,** **S-Video Y=1Vp-p(with sync) C=0.286Vp-p**
d. Frequency	**H: 15.734KHz V: 60Hz(NTSC)** **H: 15.625KHz V: 50Hz(PAL)**
e. Input impedance	**75 ohms**

2.3.3 Y/CB/CR or Y/PB/PR Signal:

a. Type	**Analog**
b. Polarity	**Positive**
c. Amplitude	**Y: 1Vp-p (with sync)** **CB/PB: 0.7±0.1Vp-p** **CR/PR: 0.7±0.1Vp-p**

d. Frequency

$Y/C_B/C_R$	H: 15.734KHz ,V: 60Hz (NTSC) H: 15.625KHz ,V: 50Hz (PAL)
$Y/P_B/P_R$: HDTV	1. 31.5KHz/60Hz (480P) 2. 45KHz/60Hz (720P) 3. 33.75KHz/60Hz(1080I) 4. 28.125KHz/50Hz(1080I) 5. 37.5KHz/50Hz(720P) 6. 31.25 KHz/50Hz(576P)

2.3.4 RGB Signal:

a. Type	TTL
b. Polarity	Positive or Negative
c. Amplitude	RGB: 0.7Vp-p
d. Frequency	H: support to 31K~91KHz V: support to 50~85Hz

2.3.5 DVI Signal:

a. Type	Digital
b. Polarity	Positive or Negative
c. Frequency	H: support to 31K~68KHz V: support to 50~85Hz

2.3.6 Audio Signal: Analog 500mV rms /more than 22Kohm

2.3.7 Pin Assignments For D-SUB Connector (In / Loop Out):

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	RED	6	RED GND	11	GND
2	GREEN	7	GREEN GND	12	SDA
3	BLUE	8	BLUE GND	13	H-SYNC
4	GND	9	NC	14	V-SYNC
5	GND	10	GND	15	SCL

2.3.8 Pin Assignments For 24 Pin DVI Connector(Digital Only):

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS Data 2-	9	TMDS Data 1-	17	TMDS Data 0-
2	TMDS Data 2+	10	TMDS Data 1+	18	TMDS Data 0+
3	TMDS Data 2/4 Shield	11	TMDS Data 1/3 Shield	19	TMDS Data 0/5 Shield
4	TMDS Data 4-	12	TMDS Data 3-	20	TMDS Data 5-
5	TMDS Data 4+	13	TMDS Data 3+	21	TMDS Data 5+
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (For +5V)	23	TMDS Clock +
8	No Connect	16	Hot Plug Detect	24	TMDS Clock -

2.3.9 MODE List For RGB/DVI :

Mode No	Resolution	Refresh Rate	Horizontal Frequency	Vertical Frequency	Vertical Sync Polarity	Horizontal Sync Polarity	Dot rate
		(Hz)	(K Hz)	(Hz)	(TTL)	(TTL)	(MHz)
1	640(VGA)x480	60	31.469	59.940	-	-	25.175
2	640(VGA)x480	72	37.861	72.809	-	-	31.500
3	640(VGA)x480	75	37.500	75.000	-	-	31.500
4	640(VGA)x480	85	43.269	85.008	-	-	36.000
5	800(SVGA)x600	56	35.156	56.250	+	+	36.000
6	800(SVGA)x600	60	37.879	60.317	+	+	40.000
7	800(SVGA)x600	72	48.077	72.188	+	+	50.000
8	800(SVGA)x600	75	46.875	75.000	+	+	49.500
9	800(SVGA)x600	85	53.674	85.061	+	+	56.250
10	1024(XGA)x768	60	48.364	60.004	-	-	65.000
11	1024(XGA)x768	70	56.476	70.069	-	-	75.000
12	1024(XGA)x768	75	60.023	75.029	+	+	78.750
13	1024(XGA)x768	85	68.677	84.997	+	+	94.500
14	1280(SXGA)x1024	60	63.981	60.020	+	+	108.00
15◎	1280(SXGA)x1024	75	79.976	75.025	+	+	135.00
16◎	1280(SXGA)x1024	85	91.146	85.024	+	+	157.50
18	720(DOS)x400	70	31.469	70.087	+	-	28.320
19	720(EDTV)x576P	50	31.250	50.000	-	-	27.000
20	1280(HDTV)x720P	60	45.000	60.000	+	+	74.250
21	1920(HDTV)x1080I	60(I)	33.750	60.000	+	+	74.250
22	640(VGA)x350	70	31.469	70.087	-	+	25.175
23	852(WGA)x480	60	31.413	59.835	-	-	30.00
28	1920(HDTV)x1080I	50(I)	28.125	50.000	+	+	74.250
29	1280(HDTV)x720P	50	37.500	50.000	+	+	74.250

RGB/DVI For Apple Standard.

Mode No	Resolution	Refresh Rate	Horizontal Frequency	Vertical Frequency	Vertical Sync Polarity	Horizontal Sync Polarity	Dot rate
		(Hz)	(K Hz)	(Hz)	(TTL)	(TTL)	(MHz)
24	640 × 480	67	35.000	66.667	-	-	30.240
25	832 × 624	75	49.725	74.550	-	-	57.283
26	1152 × 870	75	68.681	75.062	-	-	100.000

Attention ◎: For DVI is not supported.

2.3.10 Y/PB/PR For Component:

Mode No	Resolution	Refresh Rate
1	640 x 480P	60
2	1920 x1080I	60
3	1280 x 720P	60
4	720 x 576P	50
5	1920 x 1080I	50
6	1280 x 720P	50

2.4. Display Performance Requirements:

The data of display performance are measured based on the following. Conditions unless otherwise specified.

- **a. Ambient temperature** — **25±5 ℃**
- **b. Warm up period** — **30 minutes Min.**
- **c. Line input voltage :** — **100 Vac ~ 240 Vac (50 / 60 Hz)**
- **d. Viewing distance** — **Distance from screen is 81 cm**
- **e. Display mode** — **Test with window white pattern mode if not specified.**
- **f. Brightness condition** — **Press recall bottom to set default brightness**

2.4.1 Maximum Resolution: **Support to 1280 x 1024**

2.4.2 Horizontal Size (Standard) **921.6±8 mm (for mode 1～29)**
Vertical Size (Standard) **522.2±8 mm (for mode 1～29)**

2.4.3 Horizontal Size (Max.) **Mode 1~29⇨HDTV over-scan,the other full-scan**
Vertical Size (Max.) **Mode 1~29⇨HDTV over-scan,the other full-scan**

2.4.4 Maximum Brightness Level: **Timming Mode 1**

- **a. 100% center block white pattern(mosaic)** — **More than 30FL (while pressing recall button to set default brightness)**
- **b. raster background** — **With contrast / brightness at Max. and black signal) Less than 0.5FL**

2.5. Operation:

Main unit button

Main power switch (power ON /OFF)
Power ON/OFF
Input Mode (Video1 -> S-Video -> Y/P_B/P_R 1 or Y/C_B/C_R 1 -> Y/P_B/P_R 2 or Y/C_B/C_R 2 -> RGB -> DVI-> Video1 run in circle)
Menu,Volume key -,+
Adjustment -,+

IR Remote Control

Power on/off
Input Mode (same as Main unit button)
Volume -,+
Wide :
Video/S video input:4:3/16:9/ZOOM1/ZOOM2/ ZOOM3
DVI/ RGB input :W4:3/W16:9
Menu -,+
Adjustment -,+
RECALL
PIP ,POP ,SWAP
MUTE

2.5.1 Adjustable Items:

AV/S-video input	Brightness, Contrast, Color , Tint, Sharpness
Y/CB/CR	Color Temperature, Vertical position, Vertical width,
Y/PB/PR	Horizontal position, Horizontal width
Analog RGB input	Display position : Brightness, Contrast, Vertical position, Vertical width, Horizontal position, Horizontal width, Color Temperature Clock phase, Power Save.
DVI input	Brightness, Contrast, Vertical position, Vertical width, Horizontal position, Horizontal width, Color Temperature, Power Save.

3. DIMENSIONS:

	Without/Stand	With/Stand
Width	1081mm	1081mm
Height	677 mm	722mm
Depth	95mm	220 mm

3.1. Package Dimensions:

Width	1160 mm
Height	860 mm
Depth	350 mm

3.2. Weight:

Net weight	77 lbs / 35 Kgs (w/o stand) 80.3 lbs / 36.5 Kgs (w/ stand)
Gross weight	97.9 lbs / 44.5 Kgs

4. ENVIRONMENT:

4.1. Operating:

Temperature	0~40℃(32~104℉)
Relative humidity	20~80%
Pressure	800~1114hpa

4.2. Non-Operating:

Temperature	-5~45℃
Relative humidity	20~80%
Pressure	700~1114hpa
Vibration	X/Y/Z, 0.7G/30~50Hz(sweep), 15 minutes

4.3. Acoustics:

(IHF A-weighted 1meter)	40dB Max.

5. SOUND:

a. Residual hum (at volume max) 500 μW Max.
b. Practical max. Audio output (at 10% THD max.)
1.0vp-p 1K Hz input 5W +5W Max. / 4 ohm
c. Sound distortion (at 250 mw 1K Hz) 1% Max.
d. Audio output (input at 1.4V_{P-P}) $\geqq$1.0 V_{P-P}

6. Reliability Requirement:

The MTBF needs 20000hrs under operation 25±5℃(half luminosity, motion picture)

7. REGULATORY REQUIREMENTS:

7.1 Safety Requirement:

a. UL	**Safety of information technology equipment including electrical business equipment**
b. CSA	**Safety of information technology equipment including electrical business equipment**
c. TUV	

7.2 Emission Requirement:

The unit shall meet the EMI limits in all screen modes. For EMI testing, the unit must be failed with the screen pattern consisting of scrolling capital "H" characters also the brightness contrast will be adjusted to max. Level.

a. FCC class B part 15

7.3 Power Management:

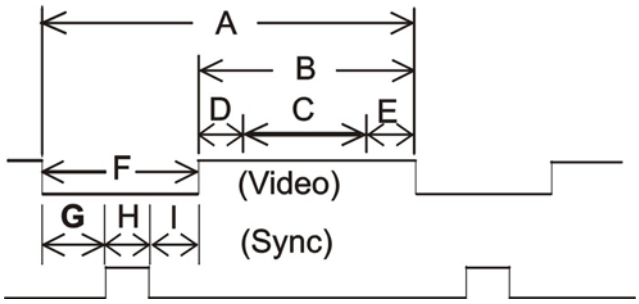
Mode	H-sync	V-sync	Video	Power dissipation
Normal	Pulse	Pulse	Active	Normal power
Stand-by	No pulse	No pulse	No video	Power off
Power saving	Pulse	No pulse	blanked	Less than 6 watts
	No pulse	Pulse		

This Plasma display is Energy star compliant when used with a computer equipped with DPMS.

Note: The power indicator LED color is green in normal state, yellow in stand-by and power saving state.

APPENDIX A :

Preset Timing Chart



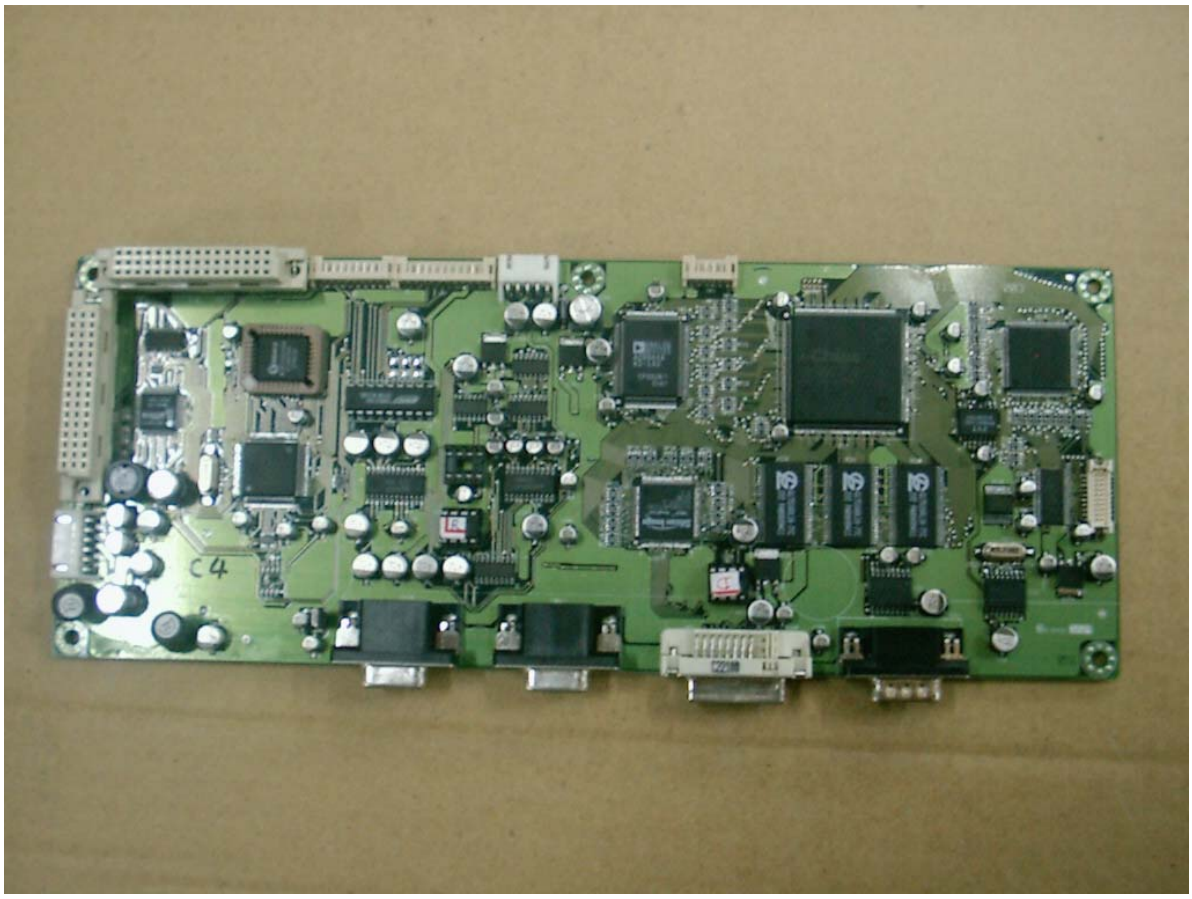
Item	Description:
A	Total time
B	Active display area including borders
C	Active display area excluding borders
D	Left/Top border
E	Right/bottom border
F	Blanking time
G	Front porch
H	Sync-width
I	Back porch

Mode No	1	2	3	4	5	6	7	8	9	
Resolution & Refresh Rate	640 480 60	640 480 72	640 480 75	640 480 85	800 600 56	800 600 60	800 600 72	800 600 75	800 600 85	Hz
Pixel Clock	25.175	31.500	31.500	36.000	36.000	40.000	50.000	49.500	56.250	MHz
Horizontal visible	640	640	640	640	800	800	800	800	800	Dots
Horizontal total	800	832	840	832	1024	1056	1040	1056	1048	Dots
Horizontal front porch	16	24	16	56	24	40	56	16	32	Dots
Horizontal sync	96	40	64	56	72	128	120	80	64	Dots
Horizontal back porch	48	128	120	80	128	88	64	160	152	Dots
Horiz blanking time	160	192	200	192	224	256	240	256	248	Dots
Vertical visible	480	480	480	480	600	600	600	600	600	Lines
Vertical total	525	520	500	509	625	628	666	625	631	Lines
Vertical front porch	10	9	1	1	1	1	37	1	1	Lines
Vertical sync	2	3	3	3	2	4	6	3	3	Lines
Vertical back porch	33	28	16	25	22	23	23	21	27	Lines
Vertical blanking time	45	40	20	29	25	28	66	25	31	Lines
Horizontal frequency	31.469	37.861	37.500	43.269	35.156	37.879	48.077	46.875	53.674	KHz
Vertical frequency	59.94	72.809	75.000	85.008	56.250	60.317	72.188	75.000	85.061	Hz
Vertical sync polarity	-	-	-	-	+	+	+	+	+	TTL
Horiz sync polarity	-	-	-	-	+	+	+	+	+	TTL

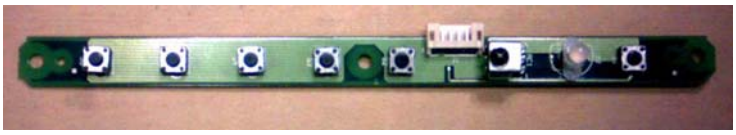
Mode No	10	11	12	13	14	15	16	18	19	
Resolution & Refresh Rate	1024 768 60	1024 768 70	1024 768 75	1024 768 85	1280 1024 60	1280 1024 75	1280 1024 85	720 400 70	720 576 50	Hz
Pixel Clock	65.000	75.000	78.750	94.500	108.00	135.00	157.50	28.322	27.000	MHz
Horizontal visible	1024	1024	1024	1024	1280	1280	1280	720	720	Dots
Horizontal total	1344	1328	1312	1376	1688	1688	1728	900	864	Dots
Horizontal front porch	24	24	16	48	48	16	64	18	12	Dots
Horizontal sync	136	136	96	96	112	144	160	108	64	Dots
Horizontal back porch	160	144	176	208	248	248	224	54	68	Dots
Horiz blanking time	320	304	288	352	408	408	448	180	144	Dots
Vertical visible	768	768	768	768	1024	1024	1024	400	576	Lines
Vertical total	806	806	800	808	1066	1066	1072	449	625	Lines
Vertical front porch	3	3	1	1	1	1	1	12	5	Lines
Vertical sync	6	6	3	3	3	3	3	2	5	Lines
Vertical back porch	29	29	28	36	38	38	44	35	39	Lines
Vertical blanking time	38	38	32	40	42	42	48	49	49	Lines
Horizontal frequency	48.364	56.476	60.023	68.677	63.981	79.976	91.146	31.469	31.250	KHz
Vertical frequency	60.004	70.069	75.029	84.997	60.020	75.025	85.024	70.087	50.000	Hz
Vertical sync polarity	-	-	+	+	+	+	+	+	-	TTL
Horiz sync polarity	-	-	+	+	+	+	+	-	-	TTL

Mode No	20	21	22	23	24	25	26	28	29	
Resolution & Refresh Rate	1280 720P 60	1920 1080I 60I	640 350 70	852 480 60	640 480 67	832 624 75	1152 870 75	1920 1080I 50I	1280 720P 50	Hz
Pixel Clock	74.250	74.250	25.175	30.000	30.240	57.283	100.000	74.250	74.250	MHz
Horizontal visible	1280	1920	640	852	640	832	1152	1920	1280	Dots
Horizontal total	1650	2200	800	955	864	1152	1456	2640	1980	Dots
Horizontal front porch	110	88	16	19	64	32	32	528	440	Dots
Horizontal sync	40	44	96	48	64	64	128	44	40	Dots
Horizontal back porch	220	148	48	36	96	224	144	148	220	Dots
Horiz blanking time	370	280	160	103	224	320	304	720	700	Dots
Vertical visible	720	540	350	480	480	624	870	540	720	Lines
Vertical total	750	562.5	449	525	525	667	915	562.5	750	Lines
Vertical front porch	5	3	37	10	3	1	3	3	5	Lines
Vertical sync	5	5	2	2	3	3	3	5	5	Lines
Vertical back porch	20	15	60	33	39	39	39	15	20	Lines
Vertical blanking time	30	23	99	45	45	43	45	23	30	Lines
Horizontal frequency	45.000	33.750	31.469	31.413	35.000	49.73	68.68	28.125	37.500	KHz
Vertical frequency	60	60	70.087	59.835	66.667	74.55	75.06	50	50	Hz
Vertical sync polarity	+	+	-	-	-	-	-	+	+	TTL
Horiz sync polarity	+	+	+	-	-	-	-	+	+	TTL

P.C. BOARD TOP VIEW VER1.0

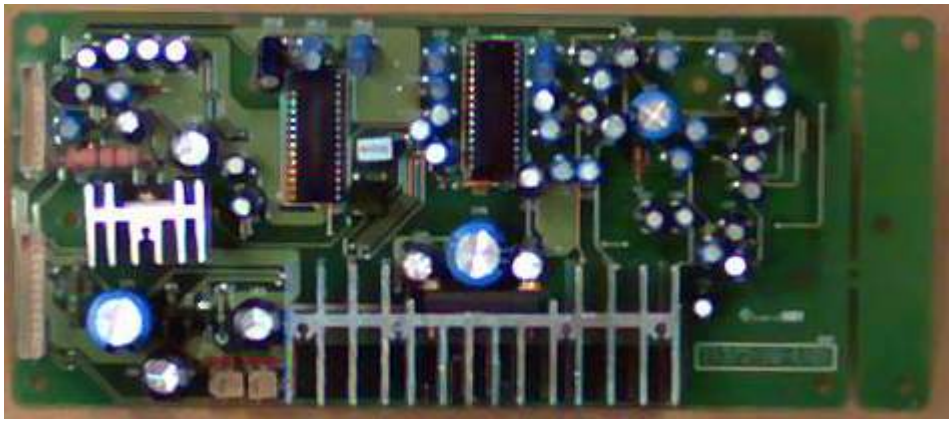


MODULE NAME	PARTS NO.
IMAGE BOARD ASS'Y	DPWB11387-MPF-A

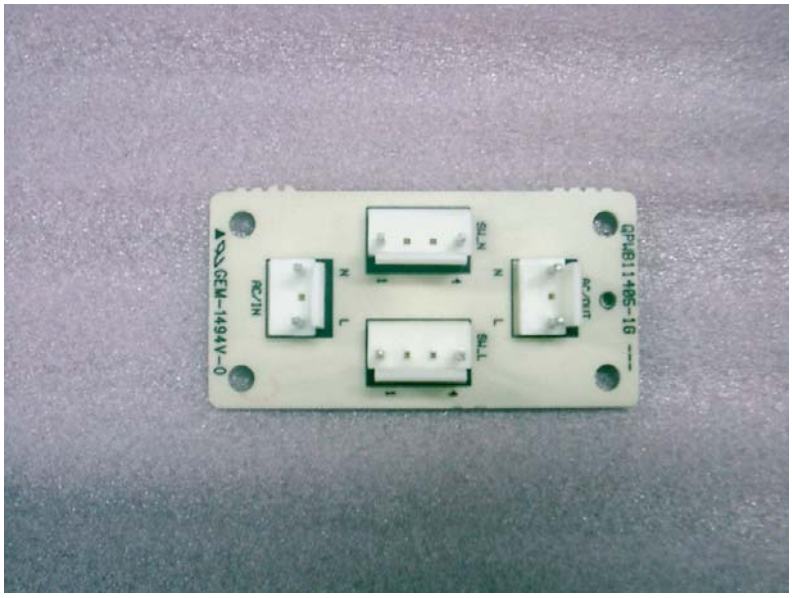


MODULE NAME	PARTS NO.
FRONT BUTTON CONTROL BOARD ASS'Y	DPWB11372-1G-K2

P.C. BOARD TOP VIEW VER1.0

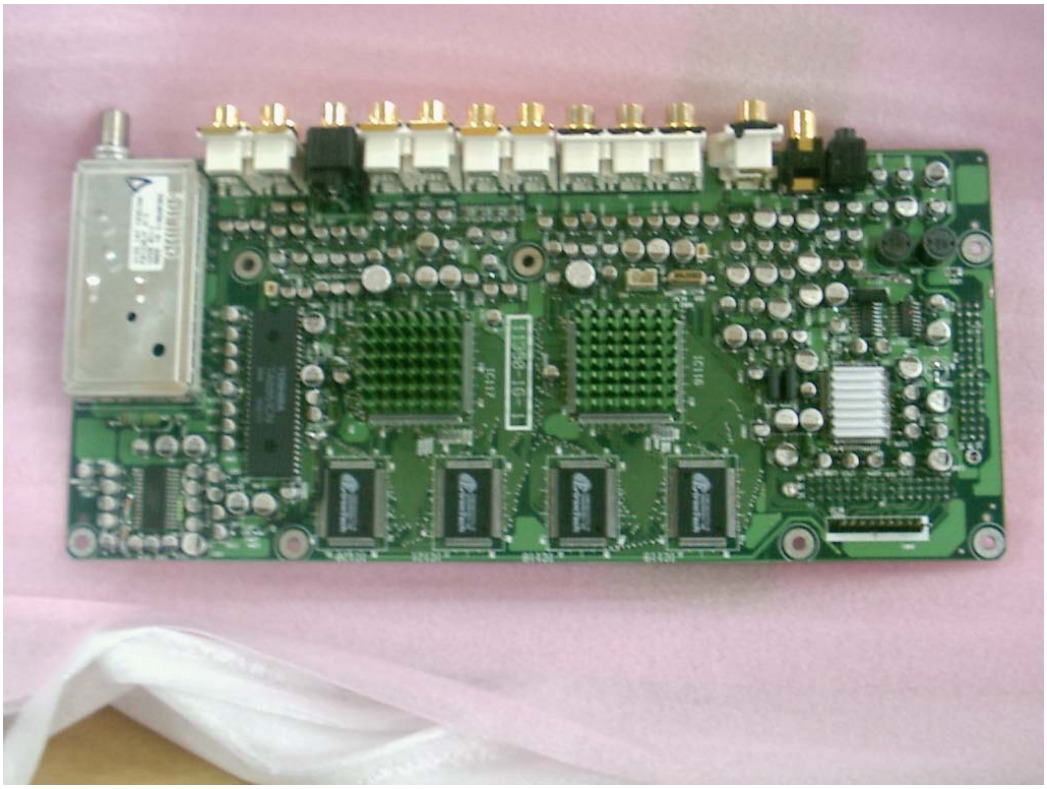


MODULE NAME	PARTS NO.
AUDIO AMPLIFIER BOARD ASS'Y	DPWB11372-1G-SX

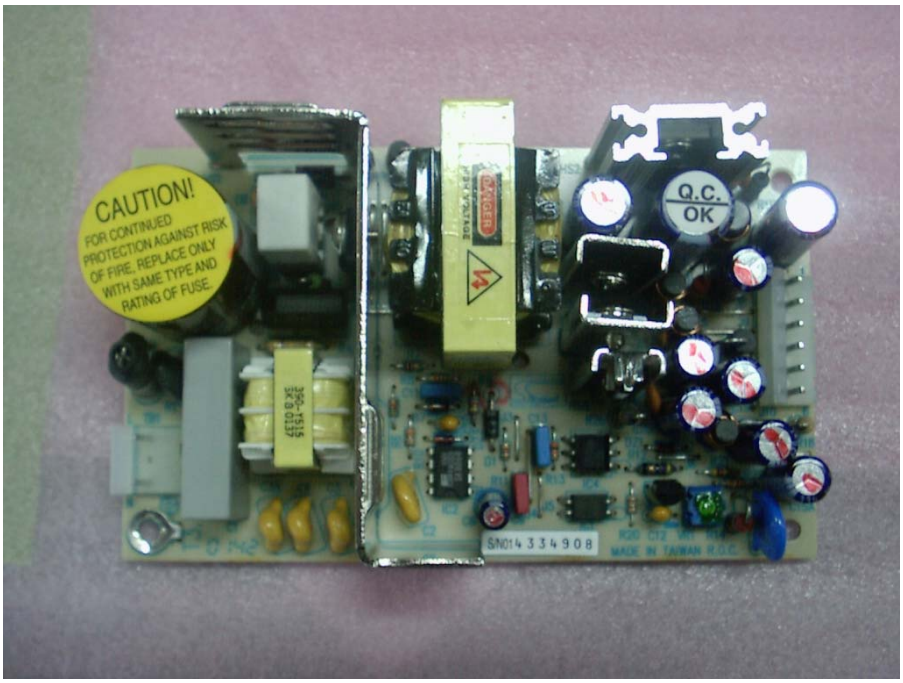


MODULE NAME	PARTS NO.
AC MASTER POWER SWITCH B/D ASS'Y	DPWB11405-1G---

P.C. BOARD TOP VIEW VER1.0

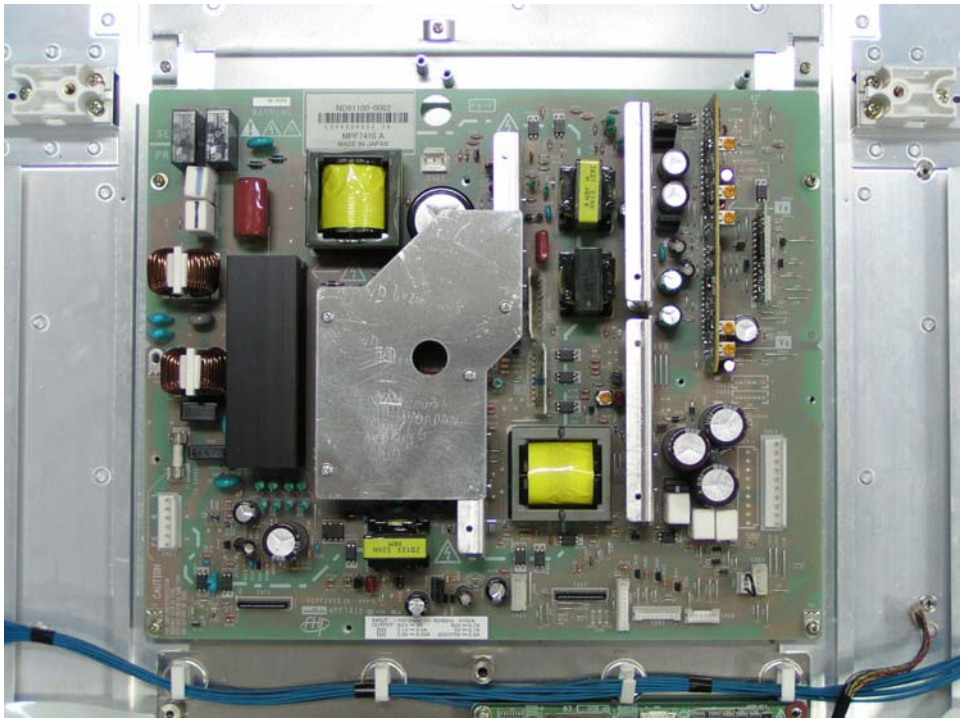


MODULE NAME	PARTS NO.
AV MODULE BOARD ASS'Y	DPWB11390-APF--

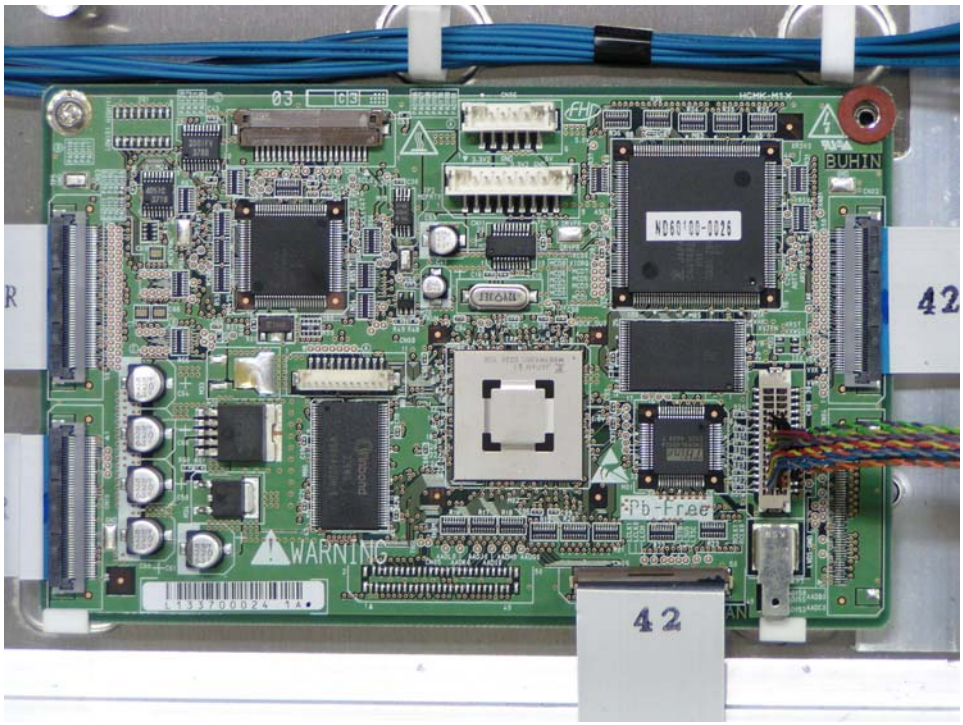


MODULE NAME	PARTS NO.
SUB-POWER BOARD ASS'Y	RUNTP1005-1----

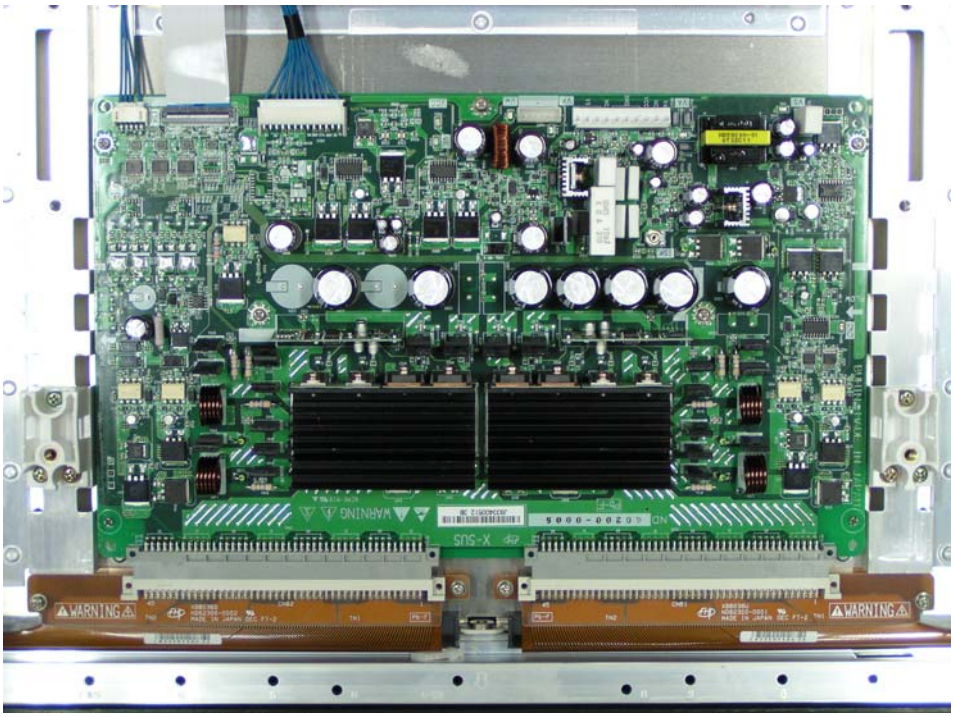
P.C. BOARD TOP VIEW VER1.0



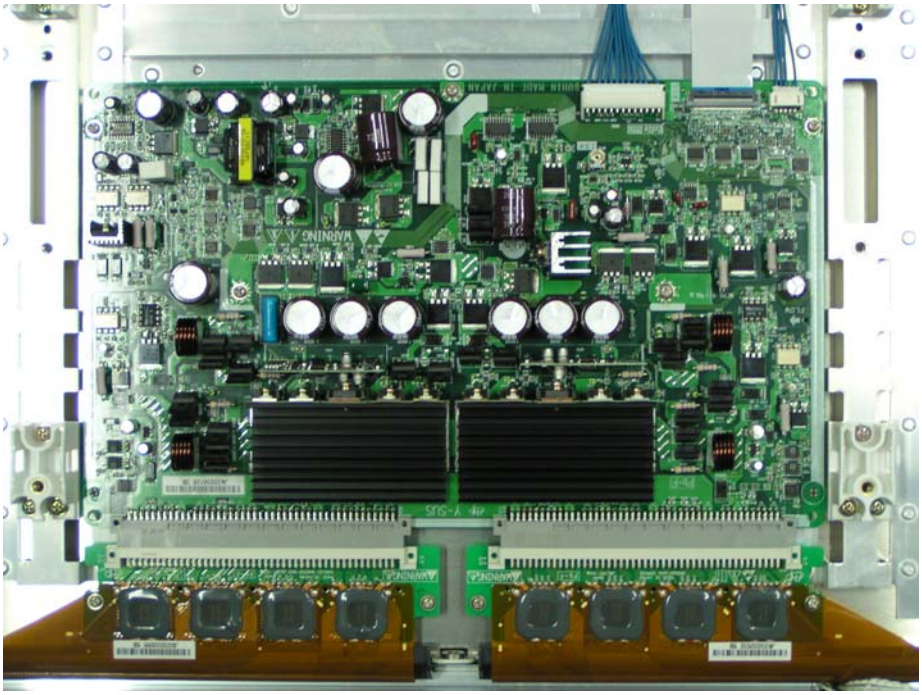
MODULE NAME	PARTS NO.
POWER BOARD ASS'Y	ND61100-0003



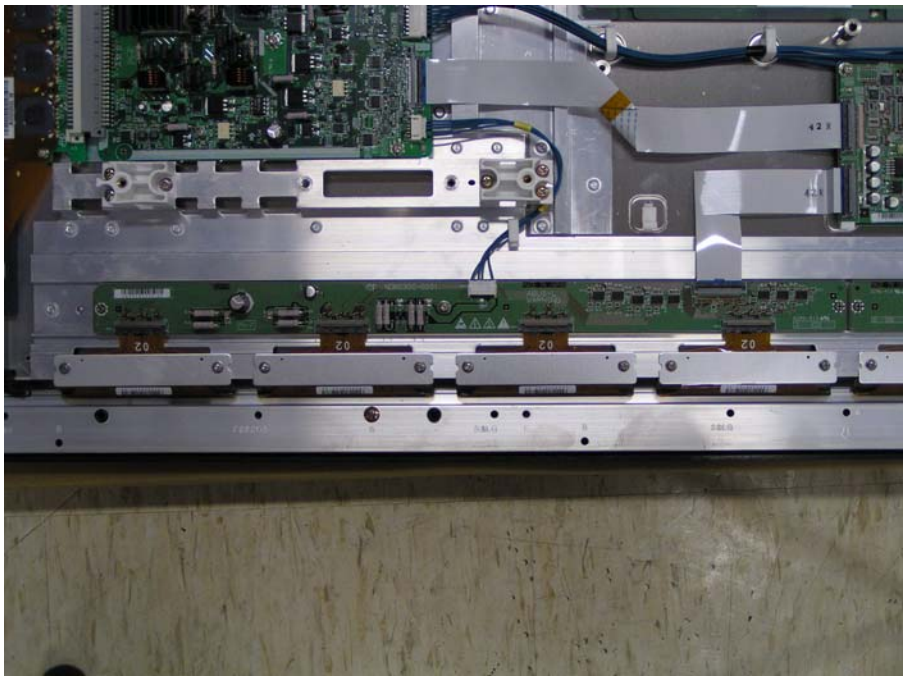
MODULE NAME	PARTS NO.
LOGIC BOARD ASS'Y	ND60100-0026



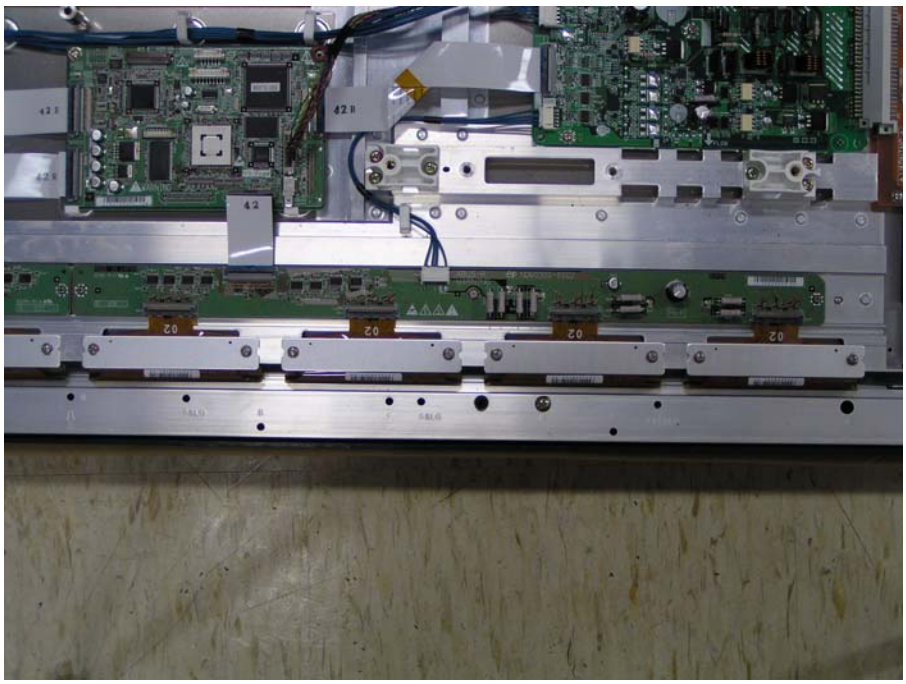
MODULE NAME	PARTS NO.
X-SUS BOARD ASS'Y	ND60200-0005



MODULE NAME	PARTS NO.
Y-SUS BOARD ASS'Y	ND60200-0006



MODULE NAME	PARTS NO.
ABUS-L BOARD ASS'Y	ND60300-0001



MODULE NAME	PARTS NO.
ABUS-R BOARD ASS'Y	ND60300-0002

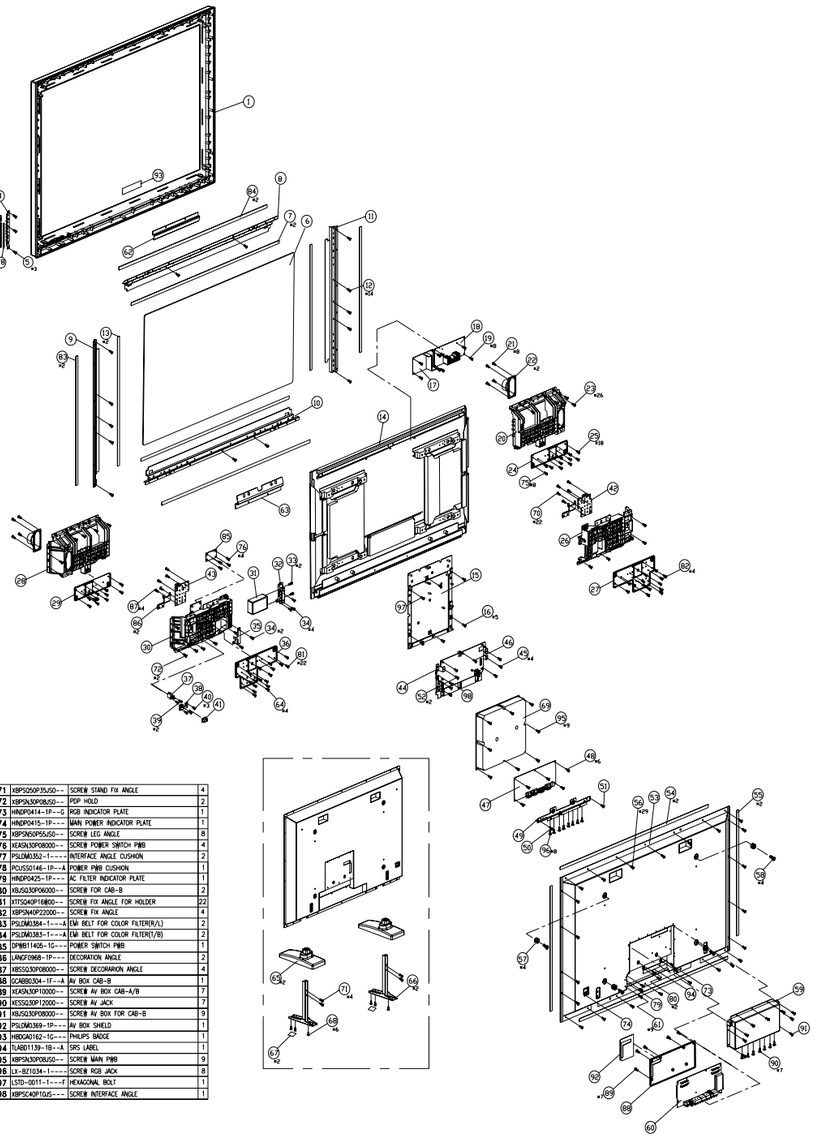
P.C. BOARD TOP VIEW VER1.0

MODULE NAME	PARTS NO.
PDP PANEL MODULE ASS'Y	VVFPF42C128UC51

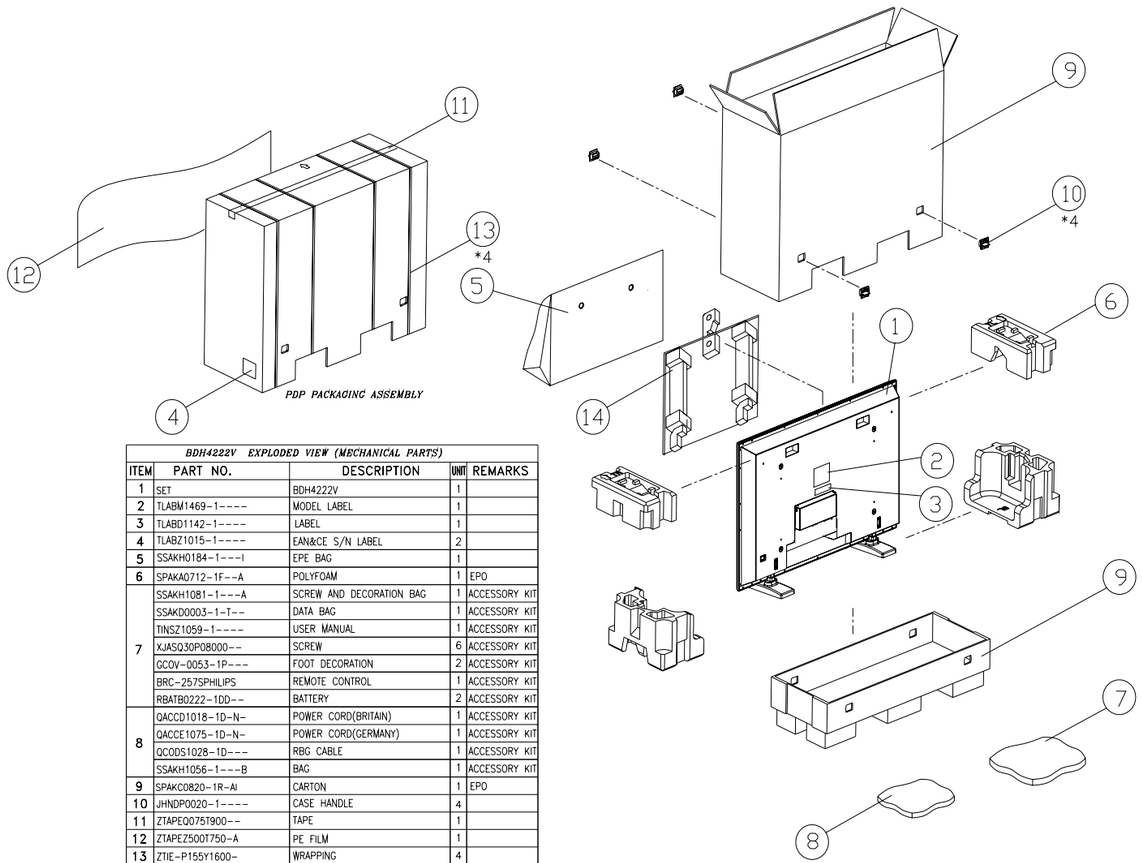
ELECTRONIC MODULES LIST VER1.0

Model Name: BDH4222V/BDH4223V

No.	Module	Supplier	Supplier's Designator / Part #	Quantity Per Final Assembly	Sub-Con Name	Sub-Con Location	Projected MTBF	Projected AFR	Current Revision Level
1	Image Board	Sampo	DPWB11387-MPF-A	1					
2	AC Master Power Switch Board	Sampo	DPWB11405-1G---	1					
3	Audio Amplifier Board	Sampo	DPWB11372-1G-SX	1					
4	Front Button Control Board	Sampo	DPWB11372-1G-K2	1					
5	AV Module Board (with tuner)	Sampo	DPWB11390-APF--	1					
6	SUB-POWER	Sampo	RUNTP1005-1----	1					
7	Panel Power Supply	FHP	ND61100-0003	1					
8	Logic Board	FHP	ND60100-0026	1					
9	X-SUS Board	FHP	ND60200-0005	1					
10	Y-SUS Board	FHP	ND60200-0006	1					
11	Address BUS-L	FHP	ND60300-0001	1					
12	Address BUS-R	FHP	ND60300-0002	1					
13	PDP Panel Module	FHP	VVFPF42C128UC51	1					



BDH4227V EXPLODED VIEW (MECHANICAL PARTS)			
ITEM	PART NO.	DESCRIPTION	QTY
1	EMSHP0152-1F---L	BEZEL ASS'LY	1
2	PREFL0081-1F---	R/C REFLECTOR	1
3	JKNBP0677-1F---B	FUNCTION KNOB	1
4	SPBB11476-KPL--	KEY PWB BOARD	1
5	KEASN30P10000--	SCREW FOR LED PWB	3
6	PCLS-0017-1402N	PDP FILTER (42" CLASS)	1
7	PCUSS0110-1----B	CUSHION FOR COLOR FILTER ANGLE (T/B)	2
8	LANG00034-1P--A	ANGLE FOR COLOR FILTER /TOP SIDE	1
9	LANG00034-1P--B	ANGLE FOR COLOR FILTER FIX/LEFT SIDE	1
10	LANG00034-1P--A	ANGLE FOR COLOR FILTER FIX /BOTTOM SIDE	1
11	LANG00034-1P--C	ANGLE FOR COLOR FILTER FIX /RIGHT SIDE	1
12	KETSN40P16000--	SCREW FOR COLOR FILTER ANGLE	14
13	PCUSS0110-1P--C	CUSHION FOR COLOR FILTER ANGLE (R/L)	2
14	VVFPF42C12BUC51	PDP PANEL	1
15	LANG70988-1P---	AUDIO/SUB/MAIN ANGLE	1
16	KBPSN30P08J50--	SCREW AUDIO/SUB/MAIN ANGLE	5
17	RUNTP1005-1----	SUB POWER	1
18	DWB11472-1G-SX	AUDIO PWB	1
19	KBPSN30P08J50--	SCREW FOR AUDIO/STANDBY POWER PWB	8
20	LHLDP0113-1F--A	PDP PANEL HOLD (RIGHT TOP)	1
21	KEJSN30P10000--	SCREW FOR SPK	8
22	RSPK1L066-14FI-	SPK	2
23	KETSN40P16000--	SCREW HOLDER ANE GROUNDING	26
24	LANGF0924-1P--B	PDP HOLD/LEG ANG	1
25	KTTSQ40P16B00--	LEG FIX ANGLE	18
26	LHLDP0115-1F--A	PDP PANEL HOLDER (RIGHT BOTTOM)	1
27	LANGF0929-1P---	LEG FIX ANGLE	1
28	LHLDP0112-1F--A	PDP PANEL HOLD (LEFT TOP)	1
29	LANGF0923-1F--B	LEG FIX ANGLE	1
30	LHLDP0114-1F--A	PDP PANEL HOLD (LEFT BOTTOM)	1
31	RFIL-1076-1----	FILTER	1
32	LANGF0927-1P---	AC-FILTER ANGLE	1
33	KBJSQ30P08000--	SCREW AC FILTER ANGLE	2
34	KEASN30P08000--	SCREW AC FILTER ANGLE	6
35	LANGF0842-1P---	AC FILTER FIX ANG	1
36	LANGF0928-1P---	LEG FIX ANGLE	1
37	DSW-P1255-12K2-	PUSH POWER S/W	1
38	LANGF0807-1P---	AC MASTER POWER S/W ANGLE	1
39	KBSSQ30P08000--	SCREW FOR PUSH POWER S/W	2
40	KEASN30P08000--	SCREW FOR AC MASTER POWER S/W ANGLE	3
41	JKNBP0520-1F--A	AC MASTER POWER S/W KNOB	1
42	LANGF0970-1G---	FOOT FIX ANGLE(RIGHT)	1
43	LANGF0969-1G---	FOOT FIX ANGLE(LEFT)	1
44	LANGF0925-1P--C	INTERFACE PWB FIX ANGLE	1
45	KEASN30P10000--	SCREW	4
46	KBPSC40P20J50--	SCREW	2
47	DPWB11387-WFF-A	DIGITAL BOARD	1
48	KBPSN30P08J50--	SCREW DIGITAL BOARD	6
49	LANGF0926-1P--D	INTERFACE ANGLE	1
50	KBPSN30P08J50--	SCREW	1
51	KEASN30P10000--	SCREW	1
52	KBPSN30P08J50--	SCREW INTERFACE ANGLE	2
53	QCABB0317-1P--S	CAB-B	1
54	PSLDM0354-1----A	EMI BELT FOR REAR CABINET STICK ON TOP & BOTTOM	2
55	PSLDM0355-1-----	EMI BELT FOR REAR CABINET STICK ON R/L SIDE	2
56	KETSQ40P12B00--	SCREW CAB-B	29
57	LHLD-0288-1----B	BUSH FOR REA CABINET	4
58	KBPSQ80P30J50--	SCREW FOR BUSH	4
59	QCABM0254-1F--K	AV BOX CAB-A	1
60	DPWB11390-APF--	AV BOARD	1
61	KBJSQ30P08000--	SCREW FOR CAB-B/DECORATION FOOT	9
62	PSLDM0381-1P--A	GROUNDING ANGLE(TOP)	1
63	PSLDM0380-1P--A	GROUNDING ANGLE(BOTTOM)	1
64	KBPSN40P22000--	SCREW HOLDER ANGLE	4
65	QSTN-0030-1F--D	STAND(PLASTIC)	2
66	LANGF0981-1G--J	STAND(METAL)	2
67	QLEGC1016-1-----	LEG CUSHION	2
68	KETSN40P10000--	SCREW STAND ANGLE	6
69	MAIN PWB	PANEL OF ACCESSORY	1
70	KTTSQ40P16B00--	SCREW FOOT FIX ANGLE FOR HOLDER	22
71	KBPSQ50P35J50--	SCREW STAND FIX ANGLE	4
72	KBPSN30P08J50--	PDP HOLD	2
73	HINDP0414-1P--G	RGB INDICATOR PLATE	1
74	HINDP0415-1P---	MAIN POWER INDICATOR PLATE	1
75	KBPSN50P55J50--	SCREW LEG ANGLE	8
76	KEASN30P08000--	SCREW POWER SWITCH PWB	4
77	PSLDM0352-1-----	INTERFACE ANGLE CUSHION	2
78	PCUSS0146-1P--A	POWER PWB CUSHION	1
79	HINDP0425-1P---	AC FILTER INDICATOR PLATE	1
80	KBJSQ30P06000--	SCREW FOR CAB-B	2
81	KTTSQ40P16B00--	SCREW FIX ANGLE FOR HOLDER	22
82	KBPSN40P22000--	SCREW FIX ANGLE	4
83	PSLDM0384-1----A	EMI BELT FOR COLOR FILTER(R/L)	2
84	PSLDM0383-1----A	EMI BELT FOR COLOR FILTER(T/B)	2
85	DPWB11405-1G----	POWER SWITCH PWB	1
86	LANGF0968-1P---	DECORATION ANGLE	2
87	KBSSQ30P08000--	SCREW DECORARION ANGLE	4
88	QCABB0304-1F--A	AV BOX CAB-B	1
89	KEASN30P10000--	SCREW AV BOX CAB-A/B	7
90	KESSQ30P12000--	SCREW AV JACK	7
91	KBJSQ30P08000--	SCREW AV BOX FOR CAB-B	9
92	PSLDM0369-1P---	AV BOX SHIELD	1
93	HBDGA01162-1G---	PHILIPS BADGE	1
94	TLABD1139-1B--A	SRS LABEL	1
95	KBPSN30P08J50--	SCREW MAIN PWB	9
96	LX-BZ1034-1-----	SCREW RGB JACK	8
97	LSTD-0011-1----F	HEXAGONAL BOLT	1
98	KBPSC40P10J5----	SCREW INTERFACE ANGLE	1



BDH4222V EXPLODED VIEW (MECHANICAL PARTS)

ITEM	PART NO.	DESCRIPTION	UNIT	REMARKS
1	SET	BDH4222V	1	
2	TLABM1469-1----	MODEL LABEL	1	
3	TLABD1142-1----	LABEL	1	
4	TLABZ1015-1----	EAN&CE S/N LABEL	2	
5	SSAKH0184-1---I	EPE BAG	1	
6	SPAKA0712-1F--A	POLYFOAM	1	EPO
7	SSAKH1081-1---A	SCREW AND DECORATION BAG	1	ACCESSORY KIT
	SSAKD0003-1-T--	DATA BAG	1	ACCESSORY KIT
	TINSZ1059-1----	USER MANUAL	1	ACCESSORY KIT
	XJASQ30P08000--	SCREW	6	ACCESSORY KIT
	GCOV-0053-1P---	FOOT DECORATION	2	ACCESSORY KIT
	BRC-257SPHILIPS	REMOTE CONTROL	1	ACCESSORY KIT
	RBATB0222-1DD--	BATTERY	2	ACCESSORY KIT
8	QACCD1018-1D-N-	POWER CORD(BRITAIN)	1	ACCESSORY KIT
	QACCE1075-1D-N-	POWER CORD(GERMANY)	1	ACCESSORY KIT
	QCODS1028-1D---	RBG CABLE	1	ACCESSORY KIT
	SSAKH1056-1---B	BAG	1	ACCESSORY KIT
9	SPAKC0820-1R-AI	CARTON	1	EPO
10	JHNDP0020-1----	CASE HANDLE	4	
11	ZTAPEQ075T900--	TAPE	1	
12	ZTAPEZ500T750-A	PE FILM	1	
13	ZTIE-P155Y1600-	WRAPPING	4	
14	SPAKA0710-1----	SPONGE	1	